JANUARY 1959

The American City

Parking... *a major problem of every progressive city*

Pave new parking areas speedily and economically with durable Texaco Asphaltic Concrete

Laying a durable Texaco Asphaltic Concrete wearing surface on parking area in Keene, N. H. Contractors —Whitcomb Construction Co., North Walpole, N. H. and Cold River Hot Mix Corp. of Keene.

In cities of every size, one of today's most pressing needs is for adequate off-street parking.

The Keene, N. H. parking area illustrated here is an example of how to combine durability with moderate cost in paving such areas.

For the foundation of the Keene parking area, inexpensive gravel was spread and compacted to a thickness of six inches. This was topped by a resilient, rugged Texaco Asphaltic Concrete pavement of the plant-mixed type, laid in two courses with a combined thickness of 2½ inches.

In addition to their long service and reasonable first cost, Texaco-paved parking areas are ready for use the day they are laid. They are immune to salts used to melt snow and ice during winter months. Their upkeep cost also is low.

We have prepared two helpful brochures for city officials, which supply useful information on Asphalt paving for streets, parking areas and airports. Copies of these publications can be secured without obligation from our nearest office.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 1 Minneapolis 3 Philadelphia 2 Richmond 11

TEXACO

TEXACO ASPHALT

Golden Anniversary Year
1909-1959

The American City

JANUARY 1959

A Buttenheim Publication

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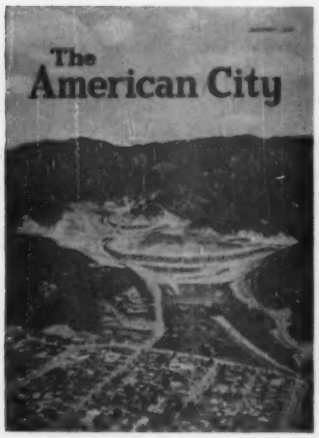

COVER PHOTO

Burbank, Calif. makes a mountain conform to its municipal wishes. The broad, raw slices in the side of the Verdugo Mountains will soon turn green again—transformed into a multipurpose recreational area whose chief features will be a challenging golf course and a Starlight Theater. H. R. Bennett, city manager of Burbank, tells about this stimulating municipal venture on page 89 of this issue.

For Index to Advertisers see page 209

What Will Tomorrow's Telephones Be Like?

PICTURE OF TOMORROW. Will tomorrow's telephones be smaller and lighter and specially designed for each room? Will the dial, mouthpiece and receiver all be in the unit you hold in your hand? Will you be able to get your party just by pushing buttons, instead of dialing? We're working on many types and testing them at Bell Laboratories and in homes and offices.

This country is going to be needing a lot more communication service in the years ahead. Matter of fact, the need is with us right now.

Just the great increase in population (there will be 40,000,000 more people in the U. S. by 1970) means that we'll be stepping right along to keep ahead of our customers' needs.

The greatest progress will come, as it always has, from the Bell System's unique concept of unified research, manufacturing and operation that has given this country the best telephone service in the world.

A vital part of this concept is always to look ahead and not back. Many new things are already at hand or in sight.

New instruments will provide an ever-widening choice for our customers. Improvements in transmission and the development of electronic switching will make our services faster and more versatile.

There are some tremendous possibilities in the use of telephone facilities for enabling business machines to communicate with each other—no matter how many miles apart. Great volumes of data of all kinds can be transmitted automatically over telephone lines at high speed.

We also have the prospect of providing picture channels for many purposes, in addition to the present networks for television broadcasting.

How far we go, and what we are able to do, depends on money. To make the best progress and apply it to the greatest advantage of everybody, the Bell Telephone Companies must be in good shape financially.

In all lines of business it is the companies whose earnings are good that are able to make the best products, provide the best service and give the best values.

BELL TELEPHONE SYSTEM

OUR GOLDEN ANNIVERSARY 1909–1959

IN GENERAL, a Golden Anniversary produces an assortment of ostentatious platitudes which we will try to avoid. Actually, 50 years isn't long at all, particularly when it refers to cities. Urban society is durable. Nations can come and go—even civilizations—but the world's cities keep right on functioning and serving the needs of the people within them, providing them with a means of livelihood, shelter and protection from their enemies.

Sometimes we hear the timid question, "Can our cities survive?" The world's cities have survived destruction by earthquake, tornado, flood, fire, and enemy invasion, but out of the rubble of this destruction, cities become reborn, grow and prosper.

In 1909, a small group of men decided that a need existed for a magazine devoted to the service and betterment of municipalities. From this came THE AMERICAN CITY. The first issue appeared in September. Thus, while this is our anniversary year, our anniversary month is still ahead of us.

One of the articles in that first issue has such a familiar ring that it humbles one who thinks that today's problems are "unique." In it, a half-century ago, Senator Theodore E. Burton of Ohio said:

> *With the increasing tendency of our people to prefer the urban to the rural life and the consequent centralization of our population, the problem of the city has become a great American question. The rapid congestion of population in very limited areas presents difficulties, social, moral, economic and political, which demand the most careful attention and press for the wisest solution.*

The editorial department of the early issues of THE AMERICAN CITY felt its way cautiously into the municipal field. Much related to city planning, but erred, as is often the case, by publishing a disproportionate amount about the giant cities. The leading article in the first issue discussed plans for Washington D. C. The sketches and models

THE AMERICAN CITY

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(Continued from page 5)

of these plans show how faithfully this program was completed.

Articles in the following year (1910) began to broaden their scope somewhat. One discussed refuse sanitation at great length. Street lighting began to appear on the editorial pages, as did street construction, parks and playgrounds. One also can read an interesting discussion of sewage treatment by Charles F. Mebus, with pictures of the trickling filter purification method.

In July 1911, two brothers purchased the magazine. One, Harold S. Buttenheim, became editor, and the other, Edgar J. Buttenheim, became business manager. Under their guidance, the magazine grew, its editorial presentations broadened in scope, its readership increased, and its advertising presented more practical information.

We join them in honoring our Golden Anniversary Year by continuing that long-time policy of what we like to call the "good idea stories." Our best way of celebrating our 50 years of service in the municipal field is increasingly to present our readers with those articles that will assist them in carrying out their municipal responsibilities efficiently and economically.

Letters to the Editor

U. S. Water Data Requested

Due to various internal communal disturbances and labor strife the delivery of your valuable magazines was unduly delayed—your April, May and June 1958 issues were received only now. I am forwarding your service cards for necessary action.

Incidentally I would like to know whether you could help me with data and literature concerning water supply and treatment schemes in the U.S.A. As an ex-colony of the United Kingdom, we are familiar only with the British systems and British equipment. Therefore could you put me in touch with some of your water boards or water engineering departments and request them to send me particulars of the water treatment and storage systems under their control?

M. Villavarayar
Engineering Assistant
Water Works Office
Amparai, Ceylon

Simplify Municipal Direction-Giving

I was commissioned to edit and design a new subway map of New York to be distributed in an initial edition of several hundred thousand copies and to be posted in subway cars. Many new data not shown on earlier maps had to be included and a new, diagrammatic method of presentation that was adopted to make complicated facts intelligible.

The map project is significant, I think, as a study in urban confusion (an almost universal problem) and its cures. Confusion in the form of inadequate signs, poor or nonexistent maps, inconsistent naming, obsolete information, etc., plagues the citizen nearly everywhere: on streets and roads, in mass transportation, in parks and buildings. The cost in waste motion, ill will and danger is high.

One of the lessons of the subway map was that direction-giving has to be tackled comprehensively. The map, it turned out, was only a first step. While preparing it, countless previously unnoticed contradictions and pitfalls were uncovered in designations and signs throughout the system. What is needed here, as in many other places, is a coordinated effort, clear across jurisdictional lines, to unify all directional information into a simple, consistent system, with the help of advanced editorial and design practices.

George Salomon
Great Neck, N. Y.

Park Financing

Regarding the article entitled "5% for Parks," (December 1958, p. 88) I think the following should be noted.

A township in Michigan adopted an ordinance in 1955 which called for a fee of $50 per each new residential unit and $.0025 per square foot for new commercial or manufacturing establishments to be placed in the general fund in an account to be known as the Park Development Fund.

This ordinance was contested in court in a case known as Antoine Building Company, plaintiff, vs. the Township of Redford, No. 283351 in the circuit court for the County of Wayne, Mich.

The court made no opinion, but ruled in favor of the plaintiff and all the money collected under the ordinance was returned to the builders.

John A. Larsen
Technical and Community Facilities Representative
Builders Association of Metropolitan Detroit
Detroit, Mich.

Plant Location Story

Thanks for a very fine story, which appeared in The American City some months ago, explaining why Textron, Inc. selected a site in South Gastonia, N. C., for their new chain-saw manufacturing plant, ("Why Homelite Selected Gastonia," April 1958, p. 159.) I have loaned my copy to so many people in past months, that now I don't have it in my office files!

Your magazine is so helpful to us from time to time, not only for the up-to-date coverage of new industries, plant locations, etc., but as a fine reference for manufacturers and dealers of so much equipment.

Murray M. Grier
Gastonia, N. C.

Boldness

Your editorial calling for boldness ("We Need Boldness," Sept. 1958) and leadership was superb!

Albin Dearing
Executive Vice Chairman
The Water Resources Council, Inc.
New York, N. Y.

Sewerage and Sewage Purification

Left:
The Hayward bucket fits into a small opening and picks up a full 1½ cubic feet of debris.

Right:
This catch-basin cleaner can load into its own dump box or that of an adjacent truck.

$3.20 per Catch Basin

IN Milwaukee, Wis. we have found that we can clean catch basins thoroughly and at relatively low cost with equipment that uses orange peel buckets. In 1957 we cleaned 22,054 basins at a total cost of $77,555, or roughly $3.20 per catch basin.

Prior to 1948, the city employed seven eductor-type cleaning mechanisms. Each was manned by two city laborers and an equipment operator who also served as truck driver. In addition, we maintained two crews to clean the basins by hand of debris that the eductor-type unit could not remove. Each required two laborers and a truck driver. Our total work force was:

18 laborers
7 equipment operators
2 truck drivers
2 foremen

In 1948, our equipment was over 20 years old and required replacing. The educator-type equipment did not work well in our cold Wisconsin winter months, thus requiring additional expensive, winter hand cleaning. Consequently we decided to investigate some changes that might be made.

Orange Peel Bucket

Our first experiment was with an H-2 Bucyrus-Erie Hydrocrane with a 15-inch diameter Bucyrus-Erie orange peel bucket. The bucket has a capacity of 1½ cubic feet, and a diameter a little over 4 feet when open. Using two 5-yard trucks to haul debris removed from catch basins to a dump site, we found that we could clean an average of 45 catch basins per day. Furthermore, the bucket removed all the debris, eliminating the need for hand cleaning.

We were favorably enough impressed so that by 1951 we decided to get a second unit, this time a Gar Wood catch-basin cleaner, and in 1952, a Silent Hoist and Crane unit. Both units use a Hayward bucket of 1½-cubic-foot capacity, with a 15-inch diameter and a 35-inch blade spread. Our total work force now consists of:

3 laborers
3 equipment operators
4 to 5 dump trucks
1 foreman

Thus we have cut our labor force by nearly one-third and are doing a more efficient and thorough job. The fact that our sump sites are as much as 10 miles from the point where the equipment will be operating is a distinct handicap to the eductor-type of equipment for our type of operation. With the present cleaning equipment, we can clear the catch basins in our residential areas once every two years, and in hilly, industrial, and densely populated areas once every eight months to one year.

Last year our labor force spent 5,612 hours on catch basin cleaning for a total labor cost of $14,336.63. This includes 55 days of vacation and sick leave, for a total of 6,025 hours charged to the operation. Miscellaneous tools accounted for $491.98. Overhaul for administration, supervision and clerical functions amounted to $2,425.94.

We rent our trucks and cleaning equipment from the Bureau of Municipal Equipment that charges us $6.24 per hour for the cleaners and $4.68 per hour for each of the four 5-ton trucks. Equipment rental charges amounted to $53,300.81 last year.

A representative two-week period shows a total of 1,430 catch basins cleaned in ten working days of eight hours each. Our cleaning operations keep the cranes working constantly, with the truck fleet hauling the material removed to the dump sites.

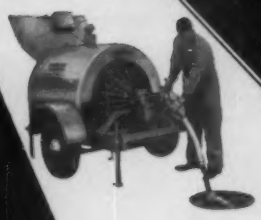
Catch-basin structures and their location vary greatly throughout our metropolitan areas. The effective opening for lowering an orange-peel bucket with catch-basin grate removed is 21 inches.

JOHN SAKS, *Superintendent*
Bureau of Street and Sewer Maintenance
Milwaukee, Wis.

O'Brien Sewerking

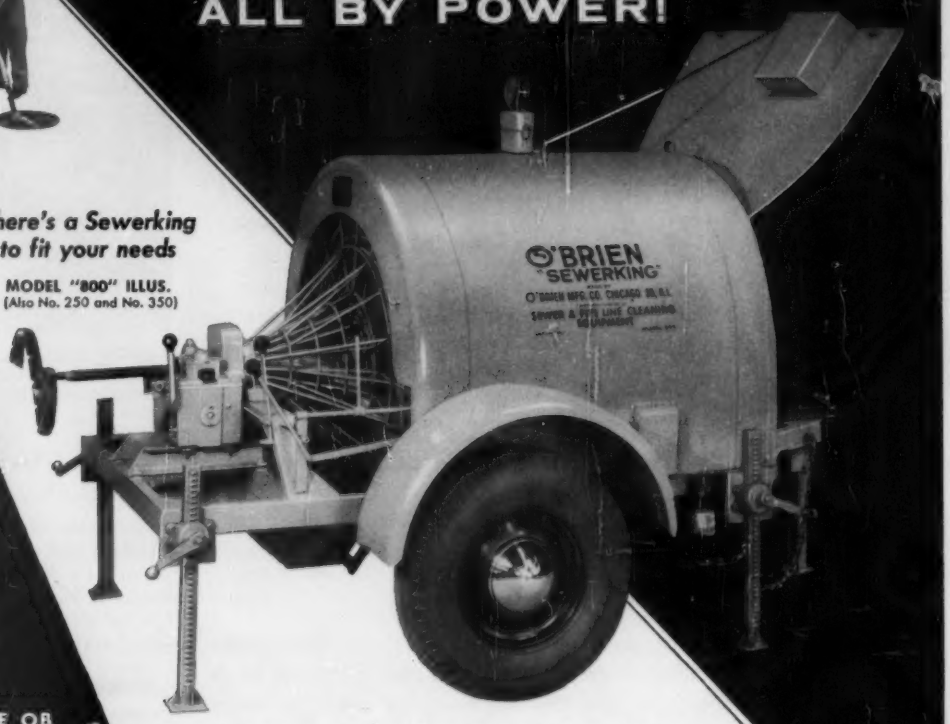
—the new way to clean sewers manhole to manhole

ALL BY POWER!

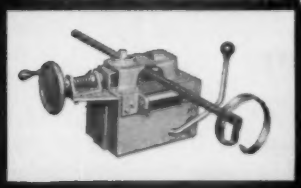


There's a Sewerking to fit your needs

MODEL "800" ILLUS.
(Also No. 250 and No. 350)



THE EXCLUSIVE OB POWER TRANSMISSION



—The secret of handling long lengths of cable by power. Easy shift lever controls movement of threaded cable which is fed through dual gears. A positive, dependable operation with safety overload release. O'BRIEN steel cable contains 4' of ⅜" solid rod stock to each foot of 1⅛" cable when coiled. Heat treated and tempered for extra strength.

• When you can clean from one manhole to the next, *set-up time*, *job time* and *man hours* are sharply reduced! Or putting it another way, many more feet of sewer can be cleaned in the same time, at no extra cost! An O'BRIEN SEWERKING, like the model "800" illustrated above, provides the capacity and performance for manhole to manhole cleaning—plus the operating simplicity of an all-power machine. All the operator does is to shift the transmission lever *forward*, to speed the cutting tool cable into the sewer—and *reverse*, to bring it back in the storage drum after the stoppage has been cut away. No manual labor, no time wasted, with *this* sewer cleaning machine that is complete in itself! Once you see an O'BRIEN SEWERKING in action, you'll agree here is a revolutionary way to clean sewers; a vastly improved method of rodding that has reduced costs for many cities 50% to 75%!

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STREET_____

SIGNED BY_____

TITLE_____ DEPT._____

AC-159

Special report to Caterpillar owners:

Parts you can trust. Dependable, round-the-clock service.

PROOF OF THE DIFFERENCE IN THE CAT "HI-ELECTRO" HARDENED CUTTING EDGE

Whether loading scrapers or bulldozing, the cutting edge takes more punishment than any other part of the machine—more punishment today than ever before. New, larger, more powerful machines put greater demands on cutting edges. And the edge that's holding up best and lasting the longest is the Cat "Hi-Electro" hardened cutting edge—the edge with the difference. From all over the country, documented results from on-the-job comparative tests with other makes of edges confirm this fact. The best buy is the Cat edge.

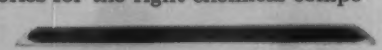
ROUGH JOBS like this put cutting edges to severe tests. And here is where tough Caterpillar edges prove their superiority.

• • •

Field tests prove that the edge with the difference, the Cat cutting edge, not only outwears other make edges of the same thickness; it even outlasts the thicker edges of other manufacturers. The reason: Caterpillar engineers perfected a hardening process to give steel the right blend of toughness and hardness—toughness to prevent breaking, hardness to prevent bending and rapid wear.

• • •

Quality edges start with quality steel, tested in Caterpillar's laboratories for the right chemical composition and physical characteristics. Only steels meeting these exact specifications are accepted, and further tests are made at every stage of production.



CROSS SECTION of edge showing armor-like case and its shock-absorbing core.

NOW AVAILABLE—NEW MULTI-SECTION 'DOZER EDGES

New multi-section 'dozer edges developed by Caterpillar for the D8 and D9 show the way to reduced blade costs and easier blade changing. Reduced blade costs can result from piece-by-piece replacement. You can now reverse and replace the worn sections. Changing is easier than ever before.

• • •

Service tip: When installing new or reversing "Hi-Electro" hardened edges, clean all dirt from the matching surfaces. Be sure that all bolt heads are properly drawn in to their holes and correct nut torque applied. This assures proper cutting edge support and maximum strength.

• • •

Your Caterpillar dealer has the complete story on the advantages of using the new Cat multi-section 'dozer edges. He backs you with dependable, round-the-clock service and parts you can trust. See him today!

NEW EDGES are now available for the D8 Bulldozer in left and right sections shown here. New edges for the D9 come in left, center and right sections.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Limestone Chips for Shoulders

THE New Jersey State Highway Department recently spread white limestone chips over 10-foot-wide shoulders on a 3.8-mile stretch of widened Route 10, near Millbrook, N. J.

The overall project called for reducing the width of the median strip, widening the two-lane roadways in each direction, and the application of asphaltic concrete over existing concrete surfaces.

Upon completion of surfacing, the highway appeared to have three traffic lanes in each direction, where actually there were two lanes and a shoulder. The condition presented hazards to moving traffic and to disabled vehicles that had no apparent emergency parking area.

The white chips were placed upon shoulders and cross-over lanes to sharpen contrast between the white shoulder and the black asphalt pavement, thus clearly marking the 10-foot safety area.

Limestone chips mark shoulders for safety.

Pint-Sized Paver Fits Amherst's Needs

A HIGHLY maneuverable bituminous paver-finisher plays an important role in the five-year, 10-mile street resurfacing program under way in Amherst, N. Y. F. Theodore Jenzen, road superintendent, states the unit provides a smooth surface by eliminating depressions and potholes and will:

- Go anywhere under its own power.
- Follow road crown, assuring proper drainage.
- Adjust easily for various road widths.

The rubber-tired Blaw-Knox PF-45 paver has a short wheel base that permits in-street turning. A municipal fleet of eight 8-ton trucks supplies the machine with bituminous material hauled from a local mixing plant. The paver, with its 4-ton hopper, empties each truck in an average of five to six minutes while moving at a rate of 25-30 feet per minute, depending upon the type and number of courses of plant mix laid.

Before embarking on the present resurfacing program, Amherst, N. Y. patched its old and deteriorating concrete streets in two ways:

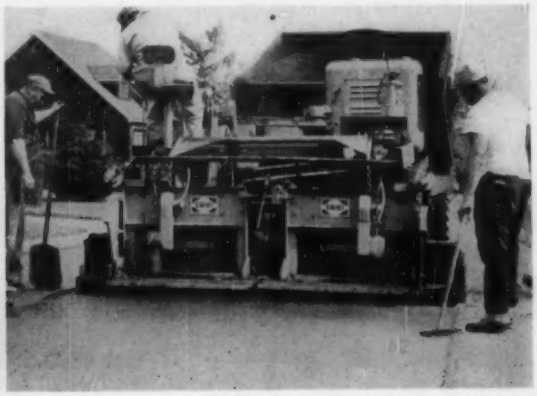
1. Replacement of individual concrete slabs.
2. A combination of manual bituminous patch work with a tack-coat spray and sprinkling of fine screenings.

The replacement of individual slabs caused the street department to fall behind in its program while the patch work rarely lasted more than a year.

The paving operation consists of hand-spraying a tack coat of liquid asphalt followed by the bituminous material. Extension of the paver's basic 8-foot-wide screed permits the paving of 27-foot-wide streets in three 9-foot strips and the 30-foot-wide ones in three 10-foot strips.

During the 100-mile five-year program the town plans to give the old roads a 2-inch binder course of asphalt and No. 2 stone and then follow up with a 1-inch top course of asphalt and extra fine stone.

The short wheel-base permits turning within the block.



Screed extension adjusts easily to fit various street widths.

Stretching the long arm of the law in Bakersfield

Bakersfield, California — 34 Harley-Davidson Solos and 7 Servi-Cars travel over 30,000 miles each month, keeping law and order in this progressive city of 54,000.

Drive this wedge between lawbreakers and your community

with Harley-Davidson police motorcycles

NO matter where they patrol, Solo officers are a constant threat to lawbreakers. Nothing stops the mobile Solo from *getting through* to where it is needed most whether it be in crowded traffic, on busy expressways or fast-moving highways. And no other vehicle can give you such flexible operation — special duty, criminal apprehension, spot traffic control, escort duty as well as general patrol.

Harley-Davidson Servi-Cars, hard-working partners of the Solo, patrol business and residential areas . . . mark cars . . . check meters . . . perform spot traffic direction. They're partners in *crime prevention* too! Just the sight of an alert officer on a Servi-Car is often enough to discourage the would-be lawbreaker, thug or thief.

To learn more about how you can stretch equipment and man-power dollars, see your dealer or write Harley-Davidson Motor Co., Milwaukee 1, Wisconsin for free illustrated folder.

HARLEY-DAVIDSON

Police Motorcycles

Old Street Electroliers Become New Park Lights

By WILLIAM G. BROWN, *Park Superintendent Bakersfield, Calif.*

AWARE of the acts of malicious mischief occurring in the city parks City Manager Leland Gunn, the Assistant City Manager Earl Mines and the City Council initiated a program to provide an improved night lighting system to assure better police surveillance. Moreover, the need was becoming greater inasmuch as several park sites were being acquired and developed and numerous improvements were being made to existing parks, including new swimming pools, tennis courts and surface game areas, all equipped with floodlights but, requiring suitable lighting after recreation hours.

At this time the City of Bakersfield initiated a street lighting improvement program in the City Business District replacing old style electroliers, not considered adequate for traffic conditions, with modern mercury vapor lights.

Out of Storage

Inasmuch as electroliers were occupying valuable storage space, it was our opinion that this old-fashioned lighting equipment with its soft, low intensity lighting might again prove useful to the city by providing suitable night lighting for our city parks. Existing park lighting consisted of only a few misplaced and unattractive arc lights hung on wooden poles and connected to nearby street lighting circuits of high voltage with overhead wiring extending through the park tree branches. With the constructive help of assistant City Manager Earl Miner, we were able to organize the project, attain funds, and expedite the work. Thus, we decided as a pilot project to equip one of the older city parks with the electroliers.

Here is the finished electrolier, ready for park service instead of street lighting.

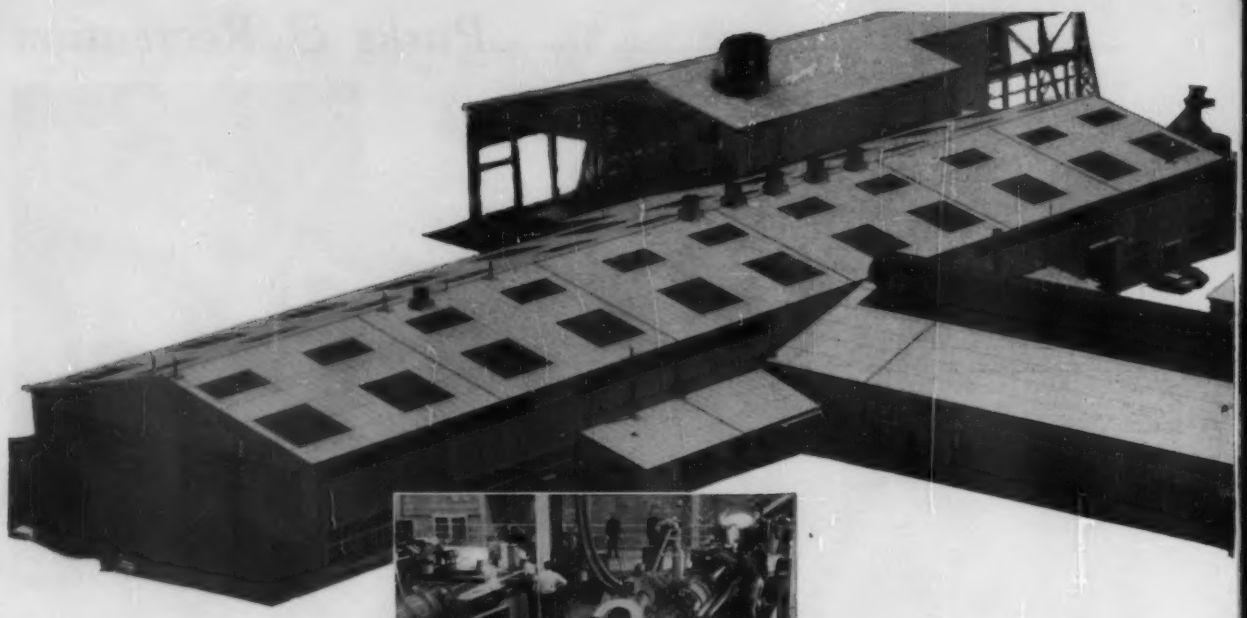
As a first step, a plot diagram was prepared specifying the number of lights required and their locations. By working on the project during the winter months, the slack period for personnel could be used. And with the help and guidance of Don Griffith, street lighting division director, and his crews, the conversion work was soon under way.

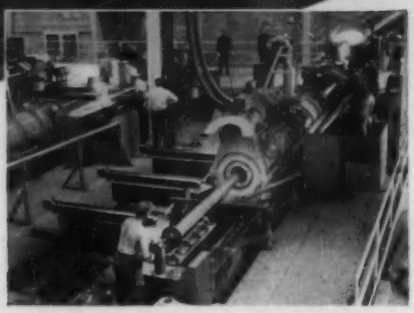
(Continued on page 163)

Two or three passes open the trench to required depth.

Closeup showing the tool that sliced open the trench for lighting cable.

The trencher is replaced quickly with a blade for backfilling.





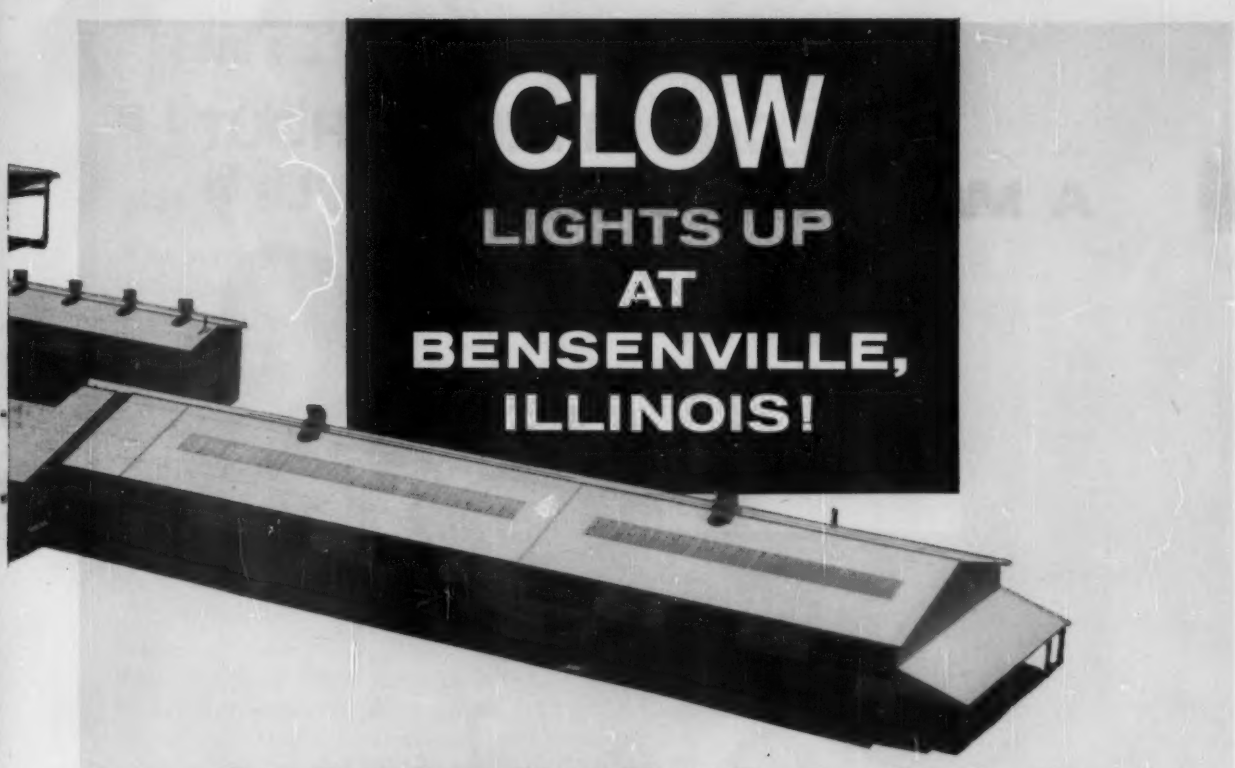
Using the metal mold process, the new casting machines at Bensenville include many patented improvements which are unique with Clow.

CONTROL... The Key to Clow's High Quality

Testing is a continuous phase of the manufacturing process. All Clow pipe is subjected to a hydrostatic test of 500 lbs. per sq. inch of water pressure—2 to 4 times the normal working pressure.

Clow cast iron pipe quality is assured by automatic instrument control during manufacture. In some cases, these control systems were developed exclusively for Clow.

Pipe annealing, a vital step in making Clow cast iron pipe, is carried out in this annealing oven —the most modern of its kind.



New Cast Iron Pipe Plant Begins Production to Meet Growing Midwest Market Demands

On September 22, 1958, the first pipe was poured at the new Bensenville, Illinois, Works of JAMES B. CLOW & SONS, INC., starting production at the most modern cast iron pipe plant in the world. The first plant ever constructed in the central states area for making cast iron pipe, Bensenville is located in suburban Chicago and is ideally situated to meet present and future demands for Clow pipe. By bringing producer and users hundreds of miles closer together, this new manufacturing plant will be able to deliver dependable Clow cast iron pipe *faster* for all construction needs. Bensenville is strategically located for shipment by rail, or by truck over the modern new highway network of the Chicago area. In addition, customers will benefit from new efficiencies of modern mass production in a plant located in an area central to vital raw materials for making cast iron pipe.

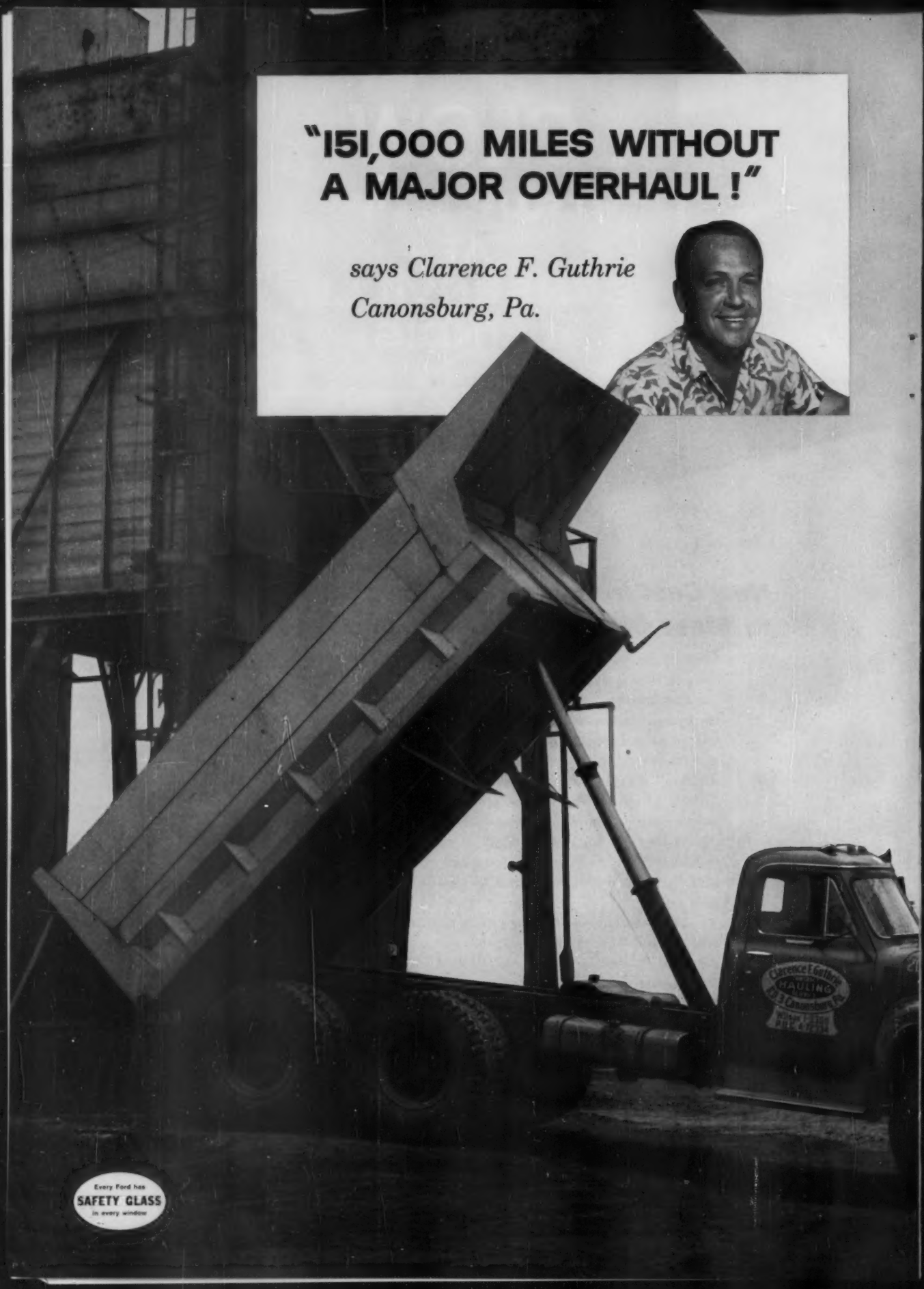
The inauguration of pipe production at Bensenville marks another step in Clow's continuing expansion program. Clow now operates pipe plants at Coshocton, Ohio, and Birmingham, Alabama, in addition to Bensenville. Bensenville is another major Clow investment in better products to better serve its customers.

OUR 80th YEAR • 1878 TO 1958

CLOW CAST IRON PIPE

JAMES B. CLOW & SONS, INC.

201-299 North Talman Avenue, Chicago 80, Illinois


"151,000 MILES WITHOUT A MAJOR OVERHAUL!"
says Clarence F. Guthrie
Canonsburg, Pa.
HAULING
Every Ford has
SAFETY GLASS
in every window

"Ford's 332-cu. in. V-8 is the hottest thing on the road for its size!

"Our fourteen Ford trucks all have exceptional durability records. Several '55 T-800 dumps, grossing 48,000 lb., have over 200,000 miles on 'em. They went an average of 150,000 miles before we touched the engine. And for power and performance, too, the Ford 332 engine is the hottest thing on the road for its size.

"Ford's better visibility, handling ease and power steering are big factors in our excellent highway safety record. We've had many million-mile accident-free years with our Ford fleet.

"In addition to our sand and gravel business, we have ten Ford F- and C-800 tractors that make long, over-the-road trips hauling limestone one way and steel on the way back.

"On these trips parts availability is very important. Ford Dealers are about everywhere, and they all stock parts. We never get delayed waiting for Ford parts."

GO FORD-WARD for savings with '59 Ford Trucks!

Whatever your job . . . wherever you do it—you'll find Ford Heavies and Extra Heavies are engineered and built to do it better! And the '59 improvements in these models will bring still more benefits to your operation.

Greater operating economy with new, faster rear axle ratios and wider choice of transmissions.

Higher payloads and longer axle life with new, higher-capacity front and rear axle options for most models.

Factory installed tractor package custom-fitted to Ford trucks for safer, more dependable braking.

More efficient parking brake of the internal expanding type has approximately 50% greater stopping and holding ability, requires less than half the operating effort needed for the previously used type.

Yes, the new '59 Ford trucks are here to take you *Ford*-ward for savings, *Ford*-ward for modern style and stamina.

See your Ford Dealer today!

NEW '59 FORD F-600 DUMP carries a maximum GVW rating of 19,500 lb. Now available with optional 6000-lb. front axle for greater capacity, longer life.

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . LAST LONGER, TOO!

Public Safety

Getting Light Close to a Fire

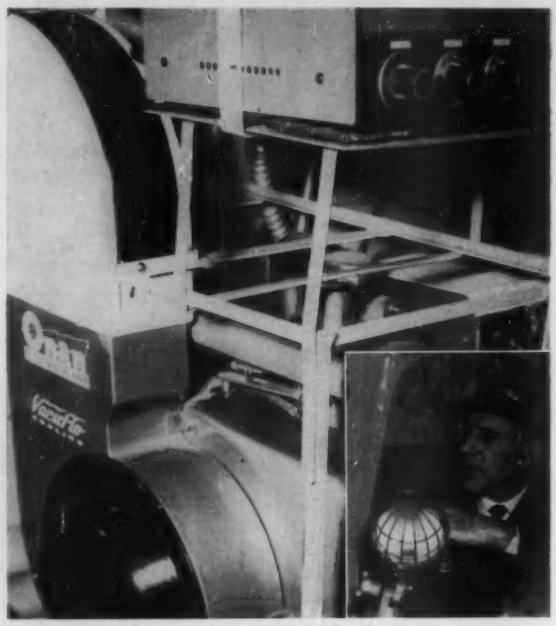
AFTER water, electric light and power are important in fire fighting. Many fire departments have portable electric generating plants mounted on the running board of ladder trucks or installed in pumping engines.

At Moorhead, Minn. (population 21,000), the fire department found that a permanently mounted plant on their ladder truck did not afford the versatility needed and the portable type required manpower and time to put into operation. On arriving at the fire the men were too busy or shorthanded to lug the electric plant, portable as it was, close to the area being served.

"We would usually set it up for service only after other fire-fighting operations were taken care of," said Fire Chief F. I. Remley.

To get the most use out of an electric plant immediately on arrival at the fire, Chief Remley put a 1957 Chevrolet panel truck into service as a small, easily maneuverable floodlight rig. To power the floodlights Remley chose a 5,000-watt Onan generator. The mounted lights are of Stonco make, the portables are by Homelite.

The unit was installed just behind the passenger seat. Gasoline to fuel it is fed directly from the truck tank so that it is not necessary to refuel except when it is needed by the truck itself.



This is the 5,000-watt Onan Electric Plant built into the Moorhead, Minn. Fire Department utility truck. A cover on the fly-wheel blower housing protects personnel from moving parts. Chief F. I. Remley is shown lower right.

Police Institutes Promote Understanding

THERE is a constantly growing need for a better understanding between the police and the citizens they serve, according to the National Conference of Christians and Jews, which, in New Jersey, has sponsored police institutes on community relations since April 1955. Most police officers are aspiring to a professional status, and training in human relations is a step in that direction.

University Courses

As a result of training locally, several New Jersey officers have been sent on to the Michigan State University Annual Institute on Police-Community Relations and to summer workshops in human relations at Rutgers University.

Edward Gray, director of the Elizabeth, N. J., Police Athletic League, who has participated in both the Elizabeth institute and a workshop at Rutgers, points out further that:

All of us gained understanding of ourselves and others, and only when we understand ourselves can we give adequate help to troubled persons.

Joseph L. Gorsky, chief of police, Fanwood, N. J., elected president of the New Jersey State Association of Chiefs of Police in December 1957, is a leading force in this pioneer movement.

Radio Keeps Police Within Reach

THE Columbus, Ohio Police Department has a new "Alert Plan" by which officers are assigned positions in various geographical locations when emergencies occur. A communications Re-Call feature on General Electric police radio contributes to the plan's effectiveness.

"Before we installed Re-Call", Police Chief George Scholer says, "We were unable to get word to an officer who was away from his vehicle that we wanted him to assume his predetermined position and to stand by for emergency orders."

If an officer leaves his driver's seat but remains within visual distance of his vehicle, he sets the Re-Call device to turn on a blinking red light on top of the police car. If headquarters needs him, the red light summons him. Where the policeman moves out of visual distance of the car, he sets the Re-Call function so that it rings a bell under the car's hood.

Alert Plan Tested

A hypothetical emergency, established by Columbus officials to test the Alert Plan, demonstrated the value of the new communications system.

More than 90 Columbus police cars now are equipped with Re-Call units.

JOSLYN TYPE MV-131 400-watt MERCURY LUMINAIRES

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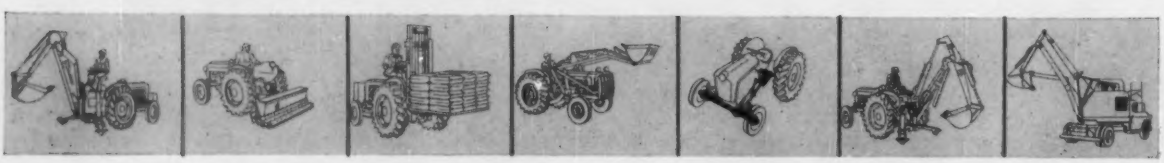


One Machine, Two Accessories, Three Jobs

The blower-equipped tractor "hits the drifts" on South Lake Drive in Cudahy, Wis., blowing the snow directly into the open park area.

WHETHER it's plowing, blowing or loading, Cudahy, Wis. uses one machine with two accessories to do the job. The city utilizes refuse collection trucks, dump trucks, a road grader, two rubber-tired front-end loaders and Jeeps for snow plowing and loading operations. The busiest of all these units is a "Michigan" Model 75A Tractor Shovel normally equipped with a 1¼-cubic-yard bucket.

In winter, the operator replaces the bucket with a V plow and, whenever it snows, takes over the job of keeping the alleys free of snow. In the meantime the other units are busy plowing streets and sidewalks.

After finishing the alley plowing, the operator replaces the V plow with a Krause Industries Sno-Thro blower. This changeover takes about 45 minutes. With the blower attached, he heads for the business district to take over the job of snow removal. Director of Public Works James J. Tiry reports the unit can load a 7-yard truck in about two minutes. The city removes snow from approximately two miles of streets in the business area and the main traffic route, and also from three municipal parking lots.

One main route, close to Lake Michigan and adjacent to a large open park area is often subject to heavy drifting. Here the blower is used to clear the roadway, blowing the snow directly into the park area.

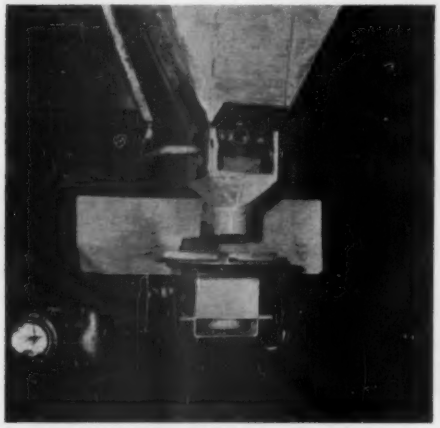
Equipment Improvements via Employee Suggestions

THE men who actually work with, or handle machinery are often in the best position to offer suggestions for improvements. These improvements may result in more efficient and economical operation, time saving, better employee morale, and lastly and probably the most important, a higher degree of employee safety.

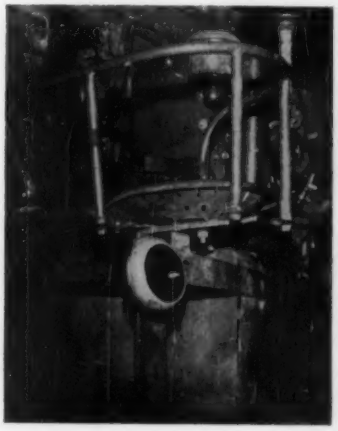
In Philadelphia several employees came up with helpful suggestions to improve snow and ice control equipment.

One suggestion provides additional safety for the operator of a rear-end-controlled salt spreader. It consists of a rail guard attachment that fits around the operator's seat, making it almost impossible for him to fall off.

The second suggestion, also pertaining to a salt spreader of the spinner type, consists of a side door cut into the base section of the spreader hopper. This door makes it possible to clean the spreader without removing it from the truck, thereby saving considerable time and labor for the city in equipment maintenance.



Left:
An employee suggested cutting this door into the base of the spreader hopper to allow cleaning without removing the spreader from the truck.



Right:
This rail attachment adds considerably to the safety of the salt spreader operator.

New! BADGER Read-o-Matic* REGISTER

adds speed-reading to water metering

Here is the industry's first practical outdoor register — the Badger Read-o-Matic. Now meter reading routes can be completed in half the time — with no more wasted calls. Plus other important benefits such as:

• *No more "lockouts"* • *No more in-house accidents* • *No more access problems* • *No more inconvenienced customers*

The new Badger Read-o-Matic means a modern meter reading system that your water department can have now — and opens a whole new realm of possibilities for the future. You'll want to read about them in our free new Badger Read-o-Matic folder.

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Refuse Collection & Disposal

Tea Party Squelches Odor Complaints

Commissioner Waggoner (with microphone) entertains guests at tea party held at the sanitary landfill site. Some 30 feet of garbage lies beneath the serving table.

COMMISSIONER J. T. Waggoner of the Birmingham, Ala. Department of Public Improvements answered odor complaints by holding a tea party on the city's sanitary landfill. When residents near the landfill area filed an injunction suit against the city to close the operation, the commissioner invited about 25 persons to the party to prove the sanitary landfill emitted no odors. Members of the local garden club came to his aid, served the tea and joined in the fun.

Persons not attending the affair heard all about it—and also viewed the party—when it was televised on the evening news roundups.

The court refused to grant the injunction but instructed the city to eliminate odors arising from drainage in the dump area.

Commissioner Waggoner reports that his department has received no further complaints since the day of the tea party.

Contract Refuse Collection in Seattle, Wash.

SEATTLE'S present refuse collection and disposal contract represents 20 years of experience with this type of operation plus 20 months of preparation by the City Engineering Department. Provisions of the contract, as outlined by D. A. Andersen, assistant city engineer, at the 1958 American Public Works Association Congress and Equipment Show, are as follows:

- **Weekly collections to all residential areas.**
- **Three collections per week to apartment houses, hotels, hospitals and large boarding houses.**
- **From once a week to six collections per week to retail business establishments, depending upon location.**

A new ordinance stipulates the manner in which garbage and rubbish is to be prepared and placed by the public for collection. The ordinance requires that all premises use a standard metal watertight garbage can. There is no limit to the number of cans that will be collected. In addition to the can, two securely tied bundles or boxes of rubbish will be collected from homes for each can used, and one such box for each can used from apartment houses and retail business establishments. There is no direct charge for this service. Funds for payment to the contractor come from general taxes.

Contract requirements include the use of all metal watertight packer-type bodies capable of compressing the material to one-half or less its original volume. Body and chassis must be painted white. The contractor must also operate and maintain the disposal sites as sanitary landfills and must keep adequate equipment and personnel on hand to do this work. He must also maintain access roads, provide fire control, and keep the area clean.

Each load of garbage or rubbish must be compacted when deposited at the site and each day's accumulation must be covered with earth—about 12 inches over the top and sides and 6 inches over the face.

Payment is made on a per capita basis plus a flat sum for each cubic yard of earth cover used. The present contract runs for five years. After the first year the city will reimburse the contractor for 60% of the amount of wage increases he grants to his collectors. The contractor is also paid a different price per capita for each year of the contract. These two features tend to offset a higher bid price to protect the contractor in the last year or two of the contract and results in a substantial saving to the city.

The total 1958 payments to the contractor for this service will come to about $1,900,000, based on a population of 575,000 and a payment rate of $2.83 per capita. The total also includes $200,000 for earth covering based on 250,000 cubic yards at 70 cents per yard. The city will also spend about $50,000 for contract supervision.

Seattle's present contract expires in 4½ years. Even though the city is getting good service under the private contract system, it will probably reconsider its policy and give serious consideration to municipally operated collection service when the present contract expires. Another possibility is the formation of several districts to operate under separate contracts rather than a single over-all contract as is now in force.

Here's the big news behind the industry's first practical outdoor register

The Badger Read-o-Matic is powered entirely by the meter to which it is attached . . . works on an exclusive "pulse" principle. As water flows through the meter, the generator sends a pulse by wire to the Badger Read-o-Matic register outside for accurate recording.

Like our Badger meters, the Badger Read-o-Matic is precision-engineered — thoroughly tested by our trained water meter experts in the laboratory and in the field. Badger Meter products are the result of over 50 years of *specialized* water meter experience — products that excel around the world in accuracy, durability, dependability and low maintenance cost.

Send for free, colorful brochure that tells you all about the revolutionary Badger Read-o-Matic. For an actual demonstration, see your Badger representative or write us direct.

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Our Municipal Notebook

First U. S. Metro Government Wins Confidence Vote

THE FIRST federated metropolitan government in the United States—Dade County (Miami), Fla.—has won a whopping vote of confidence from county voters after a year of operation.

Two voters out of three turned down a charter amendment this fall that would have sharply limited the county's role as a metropolitan government. Sixteen months before, the new charter itself barely won a majority.

The first tax cut in Dade County history was one of the new government's first-year achievements.

At the same time, the county moved into its new metropolitan responsibilities by developing a traffic code replacing separate codes in each of the municipalities in the county. Similarly, county subdivision regulations, a building code, contractor and building tradesmen certification, and a criminal code replaced or supplemented city laws.

A county-wide recreation program has been inaugurated, refuse disposal service doubled to rural areas, and plans set for more road construction in the next two years than in the entire history of the county.

Administrative changes arranged by the county-manager, a position established by the year-old charter, include:

- Bringing together 35 separate and uncoordinated county departments into a unified group of 17
- Appointing a personnel director and staff
- Establishing a modern budget system
- Revising pay scales to fit employee work load and responsibility, and
- Renovating the financial administration which had been criticized by auditors.

City of Chicago's Housing Authority Upgrades Policies

RECENT CHANGES in policy and practices have been able to attract a more stable group of tenants and have resulted in an annual savings in the cost of operating Chicago's 18,458 public housing units.

Changes in policy included raising income limits for both admittance and continued occupancy, exempting earnings of teenage part-time workers, and adopting a fixed annual rent

Air Pollution Control Notes

The menace of air pollution and the hunt for its effective control by your cities and towns continues unabated. A quick check around the country shows: ***Newark, N. J.*** is considering a stiffer air pollution control code, administered by a larger staff. ***Ashtabula, Ohio*** and ***Lancaster*** and ***Wilkes-Barre, Pa.*** are talking about establishing air pollution control ordinances. ***Reading*** and ***St. Bernard, Pa.*** have joined three other ***Hamilton County, Ohio*** municipalities in adopting a uniform air pollution control ordinance. The Ohio ordinance was drafted by a citizens' committee of Hamilton County and ***City of Cincinnati*** residents.

* * *

The ***Los Angeles*** Air Pollution Control District is conducting a six months' series of tests on official county vehicles to determine how much smog is emitted by certain makes and models of automobiles. Meanwhile, in ***San Marino Calif.***, the Air Pollution Foundation, a private organization, announces that a catalyst which eliminates eye irritation and smog low-visibility factors from auto exhausts, has now gone 6,000 miles on a car burning unleaded gasoline. The foundation calls the achievement thus far, "significant."

* * *

Another problem of automobiles—what to do with them after they hit the scrap heap—is being solved in ***New York City***, where some 250,000 scrapped automobiles are burned in the open each year. Open burning was banned after December 31, 1958. Meanwhile, two auto incinerators, one in Brooklyn and the other in the Bronx, should already be in full operation and they will operate well within the city air pollution control rules.

* * *

New fighters in the war against air pollution have been in the news recently: Peter J. Reidy, an engineer, has become Commissioner of Buildings in New York City, and, as such, is an ex-officio member of the five-man Board of Air Pollution Control, the rule-making body. In New Jersey, Norman G. White, who represents the New Jersey section of the American Industrial Hygiene Association, has succeeded himself in a four-year term on the New Jersey Air Pollution Control Commission. In Redlands, Calif. John H. Fairweather, County Board of Trade Manager, has been named air pollution control officer as well, following the resignation of George R. Bean, the county's first air pollution control officer. Chatham H. Forbes has been appointed to the new position of public information and education director for the six-county Bay Area (San Francisco) Air Pollution Control District.

* * *

The ***Wheeling, W. Va.*** Air Pollution Control Department expects that its 1958 figures will show it has had a record-breaking enforcement year. The agency expects that complaints will greatly exceed the 199 received in 1957 and that citations issued for violations will be far in excess of the 34 handed out last year.

* * *

Announcement has been made of the formation of the Ohio Valley Air Pollution Control Council, Inc., a private organization of Wheeling, W. Va., which has the following as its objectives: development of research programs; providing engineering assistance in controlling air pollution; advising communities on control ordinances, and, eventually, providing administrative, engineering and control services (excluding actual enforcement) under contract.

* * *

The Charles Pfizer pharmaceutical firm is selling an ascorbic acid compound, called Ozoban, which is said to protect vegetables from smog. The spray was developed by a research team at the Riverside Campus of the University of California, working under a grant from the firm.

* * *

Arthur S. Fleming, U. S. Secretary of Health, Education, and Welfare, announced recently that all studies of radiation pollution of both air and water thus far show levels well within permissable limits.

* * *

The American Cancer Society's massive statistical survey of 500,000 American families, to determine the relationship between personal habits and cancer, will include questions on air pollution. The society expects to question more than 1,000,000 Americans in the course of the study.

Job-sized and budget matched . . .

NEW INTERNATIONAL® UTILITY TRACTORS

Only the new International power line—with 6 sizes of wheel tractors from 12.8 to 90 hp*—offers you a specific power-match for *each* of your particular types of jobs . . . assuring the maximum in performance from your equipment budget.

Ask your IH dealer to demonstrate . . . or write for his name and new specification catalog. International Harvester Company, Dept. AC-1 P. O. Box 7333, Chicago 80, Illinois.

* *Bare engine horsepower at standard sea level conditions*

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12.8 hp International® Cub® Lo-Boy® is your lowest-cost power buy for all-around utility. Cub Lo-Boy mows equally well with 3-gang mower . . . rotary or cutter bar mower . . . Hammer Knife mower. Year 'round utility with loader, blade, others.

Rotary mower: Wood Bros.

61 hp International 460 Utility with smooth six-cylinder power—gasoline, Diesel, or LP Gas. Provides top capacity for loading and trenching with International Pippin and International Wagner (shown) heavy-duty backhoes and loaders.

Cutter bar mower: IH . . . Loader: International Wagner

45 hp International 340 Utility combines brawn for heavy work with exceptional operating economy. Front-end loader and side-mounted cutter bar mower represent only one of the many equipment combinations available for this versatile power unit.

38.5 hp International 240 Utility, new IH power size, provides International durability and brawn matched to the lighter range of work. The 240 proves especially economical for mowing, utility loading, trenching to 10-foot depths, landscaping.

7-gang mower: Roseman

plant. As a consequence an increased number of wage-earning normal families—consisting of husband, wife and children—have become eligible for the benefits of the program. Alvin E. Rose, executive director of the Housing Authority, estimates that the changes will mean additional annual revenue for the authority of about $150,000.

That these changes have found favor with the public is indicated by the increase in new registrations which are currently averaging about 1,000 a month. Further evidence is found in the decrease in turnover which is now 12.8% annually, compared to 18% for the past four years, and to 30% for local authorities throughout the nation. The importance of this reduction is felt not only in decreased costs of cleaning and decorating vacated apartments, but in the stabilizing effect on the public-housing-development population.

During the last fiscal period 2,738 new dwellings were completed and occupied, construction contracts were awarded for an additional 1,807 dwellings. During the calendar years 1959 and 1960, approximately 7,600 additional units are scheduled to reach the building stage.

A list of the new rent schedules and income limits can be obtained from the Chicago Housing Authority, 608 S. Dearborn St., Chicago 5, Ill.

What Brings Voters Out In Kansas Municipalities

APPARENTLY voters in Kansas municipal elections will turn out in greater numbers whenever issues arise involving streets, water, sewers, electric power or other utilities, according to a study recently published by the University of Kansas.

The old maxim that the incumbent has the advantage does not necessarily hold in Kansas local elections. On a state or national basis, it remains true because more people know the incumbent. On a local basis, however, many people become as well known as an elected official. Elections involving a majority of the city governing body appear to stimulate voter interest if the city has a strong opposition group.

The introduction of the council-manager plan appears to increase the number of votes for the first few years. Later, the number seems to decline somewhat as controversial issues disappear. The vote appears to be higher in cities using the commission form of government where efficient coordination among commissioners is difficult and controversy often arises.

The study points out the criticism sometimes aimed at the council-manager form of government, to the effect that it has contributed to the disintegration of political parties at the local levels. It offers the suggestion that the national political parties have not been performing any needed funtion at the local level in some Kansas communities.

Voters appear to turn out in greater numbers when they cast ballots for a governing body on an at-large basis, rather than by wards.

The bulletin, Governmental Research Series No. 18, was prepared by Clarence J. Hein.

Dog Days In Deerfield

DOGS AND DOG OWNERS in Deerfield, Ill., will have to watch their steps in the future. A new ordinance puts the liability on the owner for any dog running at large within the village. It also prohibits the owner to keep a dog in the village that disturbs the quiet or causes "danger or fear" to any person or neighborhood.

The law also makes the owner responsible for the acts of his dog, whether the animal is on a leash or running at large.

The ordinance specifies the fees and costs of impoundment. It also provides that a person may license a dog under six months of age without having the animal vaccinated for rabies. And it provides for the appointment of a pound master.

Best Overall Municipal PR Programs

DEARBORN, MICH. received an award at the recent American Municipal Association meeting in Boston for the best overall public relations program among municipal governments of the United States.

Tacoma, Wash. was presented a special award for a public relations campaign successfully promoting a bond issue. First- and second-place ribbons for exceptional publications were earned by ***Tacoma Park, Md.*** and ***Lakewood, Calif. Jackson, Miss.*** was presented an honorable mention award.

Dearborn was cited for the excellence of its year-round public relations program, initiated as a specific function of the city government nine years ago by Mayor Orville L. Hubbard.

The presentations were made by Abe Rosen, president of the Governmental Public Relations Association, which sponsors these awards. Mr. Rosen is public relations officer for Philadelphia, Pa.

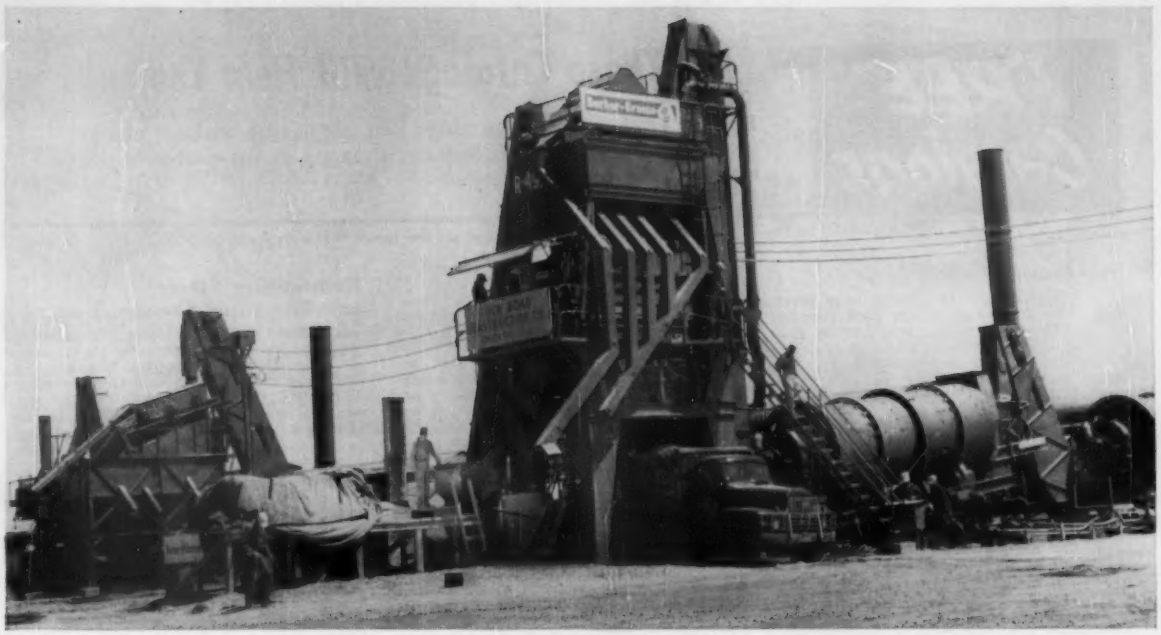
John Randall Owen Joins The American City

THE AMERICAN CITY announces the appointment of John Randall Owen as Associate Editor. Mr. Owen augments the editorial staff of engineering and technical specialists on this magazine.

Mr. Owen is a civil engineer, holding membership in the American Society of Civil Engineers. He was at one time assistant borough engineer, Leonia, N. J. He has worked for *New York Times,* and for *Engineering News-Record* as municipal editor. He is a gradute of Newark College of Engineering, and served with the Army's 1777th Engineer Construction Battalion during World War II as a first lieutenant, seeing service in Europe, the Philippines and Japan.

Mr. Owen takes his place with other technically trained specialists on the editorial staff that counts such leaders as:

- ***Alden W. Welch, Research Editor***—a graduate of Pratt Institute in electrical engineering, for more than 25 years a member o f the editorial staff of THE AMERICAN CITY, and whose editorial leadership in the field of outdoor lighting, traffic and transportation has become internationally recognized.
- ***Elroy F. Spitzer, Engineering Editor***—a graduate of the University of Wisconsin, one time assistant city engineer, Kenosha, Wis., and city engineer, South Milwaukee Wis.
- ***William S. Foster, Editor***—a civil engineering graduate of Iowa State College, who has served as guest lecturer at Stevens Institute of Technology, at University of Pennsylvania's Institute of Local and State Government, at University of Pittsburgh's Institute of Local Government, and elsewhere; who is the author of *Modern Water Rates,* the *Municipal Officials Scrapbook;* and, who is a former national officer of the American Public Works Association, a member of many technical associations, and a diplomate in the American Academy of Sanitary Engineers.



At left is the Barber-Greene Continuous Plant; at right is the BatchOmatic. Together these plants produced all asphalt tonnage on the test road. Both proved their ability to meet abnormally rigid specifications.

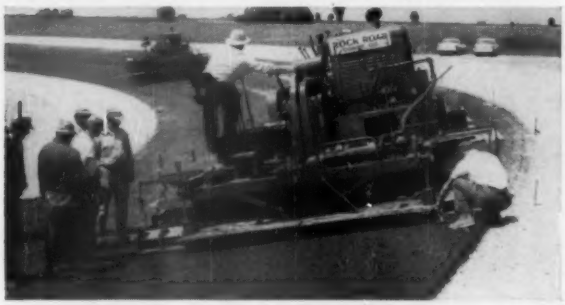
Barber-Greenes meet tight AASHO test road specs

Two Barber-Greene Asphalt Plants, a continuous type and a BatchOmatic, produced every ton of asphalt mix on the AASHO test road near Ottawa, Ill. Every ton was laid with Barber-Greene Finishers.

Specifications on this important test road were more rigid than any normally encountered in highway work. Probably no asphalt mixing and paving equipment has ever before been called upon to meet such close tolerances.

Hundreds of combinations of asphalt mixes and base and surface thicknesses were required. Each operation had to fall within the time limits specified by a rigid time schedule.

"We knew that Barber-Greene Asphalt Plants and Finishers had the ability to meet these rigid specifications," commented the asphalt contractor, Rock Road Construction Company of Chicago. With over 20 years' experience in the operation of Barber-Greene Asphalt Paving Equipment, the results again justify their confidence in Barber-Greene.



Paving steep super-elevations while staying within close specification tolerances was just one of the stringent requirements successfully met by Barber-Greene Finishers on the test road.

Paving on crawlers and traveling on rubber, the new Barber-Greene Model 873 Finisher paved all the test road's 6′ asphalt shoulders in four days—at 64 different locations.

58-48-A1

Write for information on the world's most modern asphalt paving equipment.

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

FREE Catalogs

These Catalogs Will Help You

By checking over these listings you can secure without charge important up-to-date information on many of the problems which may be troubling your city.

Write directly to the address given, or use the Post Card on the insert following Page 50.

Surveyors' Transit

230 Superior optical qualities and precision fashioning of the K&E Paragon Transit contribute much to its ease of use and performance excellence. It sights clearly and sharply, with less eye strain, and even under the most demanding field conditions will stay true. For details, write KEUFFEL & ESSER CO., DEPT. AC-1, HOBOKEN, N. J.

A New Book On Floodlighting

231 The first completely new floodlight book issued by Crouse-Hinds since 1952 will be available to municipal officials free late in January 1959. It's 184 pages are divided into 14 sections devoted to phases of flood lighting and the products used. Several sections, as well as products, are entirely new. To reserve a copy of *Floodlight Catalog* 320, write CROUSE-HINDS CO., SYRACUSE 1, N. Y.

16 Diesel Models

232 CONTINENTAL MOTORS CORP., MUSKEGON, MICH., manufacturer of Red Seal diesels, offers 16 models, ranging from 34 to 225 hp and from 4 to 8 cylinders, and engineered to power equipment used extensively in municipal applications.

Portable Traffic Signal with Radio Control

233 Porta-Signal, a fully automatic, radio-controlled, battery-powered traffic light, provides automatic traffic control at any time and at any intersection. Moreover, you can control it to meet a wide range of pedestrian and vehicular traffic control needs. It has four methods of operation: remote control, automatic, manual, flasher. For details, write DRYO-MATIC CORP., PORTA-SIGNAL DIV., ALEXANDRIA, VA.

Reversible, All-Purpose Snow Plow

234 Frink's new Trip-Blade snow plow is designed to cope with almost every snow removal problem. It plows left or right, bulldozes straight ahead, reverses while raised or on the ground. The curved panelled moldboard is light, strong, safe to use at all speeds. For details, write FRINK SNO-PLOWS, CLAYTON, 1000 ISLANDS, N.Y.

Centrifugal Pumps

235 Single-stage, side-suction centrifugal pumps with open impeller are the subject of a new 8-page bulletin. Designed for a wide variety of municipal applications, these pumps are available in 13 sizes (1¼"-8"), have capacities to 3,000 gpm and heads to 180 feet. For a copy of *Bulletin* 720.4 write GOULD PUMPS, INC., 50 BLACK BROOK ROAD, SENECA FALLS, N. Y.

Stronger Bridge Floors Easier to Construct

236 With Greulich 4-way Grids you achieve maximum lateral stability, faster and more economical construction of bridge flooring and a quieter riding surface. They require 20% fewer field welds and can be filled half depth with concrete where a closed surface is dsired. For full facts, write HARVEY F. NEEL, MGR., DIVISION A-1, KERRIGAN IRON WORKS, NASHVILLE, TENN.

No More Sweating Rusting Pipes

237 You can completely protect those sweating pipes, airducts and other metal equipment against rust and corrosion by covering them with a plastic coating called NoDRIP. Easy to apply and resistant to alkali, brine and acid, it acts immediately to insulate and protect. The *NoDrip Data Handbook*, available from J. W. MORTELL CO., 565 BURCH ST., KANKAKEE, ILL., gives full details.

Irrigate Golf Courses, Park With Plastic Pipe

238 Over 19,000 feet of Uscolite plastic pipe form an underground network that furnishes water to Baltimore's new 6,600-yard municipal golf course. Its smoother finish meant that smaller i. d. pipe could be used; its light weight, meant faster installation; its flexibility, it could be curved without fittings. And it is impervious to corrosion by soil or water. For details, and other municipal applications of Uscolite, write DEPT. USCO, MECHANICAL GOODS DIV., UNITED STATES RUBBER, ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Improved Fire Hydrants

239 The Eddy hydrant has been improved to provide more efficient, dependable fire protection service and more economical maintenance. These improvements, which include an optional break ground line flange, are discussed in literature available from EDDY VALVE CO., WATERFORD, N. Y.

Faster Curb and Gutter Laying

240 The Smith-Field Automatic Curb and Gutter Machine lays up to 1,200 feet of integral curb and gutter per day without forms or hand finishing. It uses Portland cement concrete. For complete information, write E. L. HARDIN ASSOCIATES, INC., SALISBURY, N. C.

Static and Vibratory Rollers

241 Two descriptive folders, well illustrated with on-the-job photos, show various uses of the Rollpac, a 1-ton static-type roller, and the Vibrapac, a 2-ton vibrating roller. Copies are available from ROSCO MFG. CO., ROLCAR DIVISION, 3118 SNELLING AVE., SO., MINNEAPOLIS 6, MINN.

Takes the Drudgery Out of Stump Removal

242 The one-man operated Pow-R-Stump cutter reduces tree stumps to chips in minutes, ripping them into shreds to a depth 10 inches below ground surface. When an operation is completed, there are no gaping holes to be filled, no rutted lawns or damaged walks. For literature, write VERMEER MFG. CO., 1452 W. WASHINGTON, PELLA, IA.

Removes Abandoned Vehicles

243 To clear streets of cars that have been purposely abandoned, to remove cars that violate parking ordinances and create hazards by so doing calls for fast, efficient work, often under hazardous conditions. Holmes wreckers, built for such work, handle such situations with speed, safety and confidence. For details, write ERNEST HOLMES CO., CHATTANOOGA 7, TENN.

Reinforcing Steel and Municipal Construction

244 Much of the resourcefulness brought to reinforced concrete construction in municipal projects is made possible by steel used as reinforcement. LACLEDE STEEL CO., ST. LOUIS, MO., supplies material for such work, one current use being the unusual water storage basin under construction in St. Louis, Mo. For information, write the company.

Water Service Products

245 For a complete line of quality water service fittings for iron pipe, copper service and special applications, write STERLING FAUCET CO., MORGANTOWN, W. VA., for its *Water Service Products Catalog*. Information on corporation, curb and compression stops, "Y" valves, water tube fittings and couplings are included.

An Activated Sludge Plant That's Different

246 The Aero-Accelator is not a traditional activated sludge plant, yet it meets the essential requirements of an efficient oxidative biological treatment system with consistency of performance. How this compact, highly efficient multipurpose unit does this is told in *Bulletin* 6510-D; write INFILCO INC., TUCSON, ARIZ.

Sanitary Waste Receptacles

247 Witt cans and pails and drum lids promote better municipal housekeeping, sanitation and safety. They are exceptionally rugged, watertight and economical. All features of this sturdy line of waste receptacles are discussed in *Catalog* 85, available from THE WITT CORNICE CO., 4454 STEEL PLACE, CINCINNATI 9, OHIO.

Sweeps Streets Fast and Clean

248 The sweeping story told in *Bulletin* AC-1 has as its protagonist the Mobil Sweeper, a 4-wheel unit that sweeps streets fast and efficiently, saves manpower, reduces deadheading, and is low in maintenance. For your copy, write MOBIL SWEEPER DIVISION OF THE CONVEYOR CO., 3260 SLAUSON AVE., LOS ANGELES 58, CALIF.

Reflective Beads

249 Because of their wide reflective angle, brilliance and ability to vividly transmit almost any color, M-B Hylite beads give greater impact to any type of sign. They are ideal for municipal and highway signs and for safety striping municipal vehicles. Literature describing them may be obtained from M-B CORP., NEW HOLSTEIN. WIS.

Synthetic Fibres Lower Street-Cleaning Costs

250 Permene synthetic fibre for the main broom of your street sweeper is an imaginative answer to rising street sanitation costs. It outwears natural fibres 3 to 5 times (this means fewer rewinds, minimized labor costs) and doesn't become limp and matted when wet. For complete information, write INDUSTRIAL SALES O'CEDAR, DIV. OF AMERICAN-MARIETTA, 2246 W. 49TH ST., CHICAGO 9, ILL.

(See page 32 for more Bulletins)

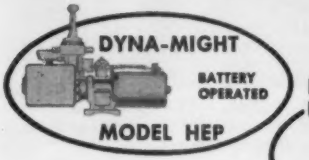
SNOW REMOVAL is faster, easier, more economical

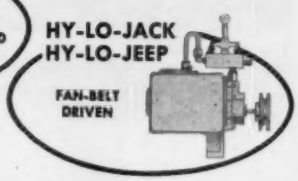
WITH

MONARCH Power Hydraulic CONTROLS

that LIFT and LOWER the snow plow...

...Automatically!





You operate the snow plow right from the truck or jeep cab with Monarch Controls. Instant, automatic lifting or lowering that saves time, does the job more efficiently. See your dealer or write for illustrated folder.

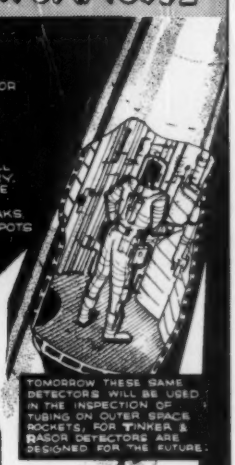
MONARCH

MONARCH ROAD MACHINERY COMPANY

1331 MICHIGAN ST., N.E., • GRAND RAPIDS 3, MICHIGAN

DESTINATION: TOMORROW!

TODAY THE E/4 SHOULDER HOLIDAY DETECTOR AND THE E/P PULSE TYPE DETECTOR FOR DAMP CLIMATES ARE ANSWERING THE PIPELINER'S NEED FOR A DEPENDABLE, FULLY PORTABLE, GENERAL PURPOSE ELECTRICAL INSPECTION INSTRUMENT. BOTH MODELS CAN BE USED FOR A FULL DAY WITHOUT RECHARGING THE BATTERY. ALL WRAPPED SURFACES INCLUDING PIPE CAN BE QUICKLY AND ACCURATELY INSPECTED FOR VOIDS, PINHOLES, BREAKS, SCRATCHES AND BURNED OR COKED SPOTS.



TOMORROW THESE SAME DETECTORS WILL BE USED IN THE INSPECTION OF TUBING ON OUTER SPACE ROCKETS, FOR TINKER & RASOR DETECTORS ARE DESIGNED FOR THE FUTURE.

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Electronic Detectors for every Industry

J. R. TINKER & RASOR

417 AGOSTINO ROAD, P. O. BOX 281, SAN GABRIEL CALIFORNIA

Economical, Trouble Free COAGULATION With

Ferri-Floc

FERRIC SULFATE

Ferri-Floc FERRIC SULFATE

Reduce your water treatment problems to a minimum with Ferri-Floc—the superior Coagulant — Ferri-Floc is a free flowing granular salt that can be fed through most standard dry feed equipment — It is easy to handle and can be stored in closed hoppers over long periods of time.

WATER TREATMENT

Efficient Coagulation of Surface or Well Water — Effective in lime-soda ash softening — Adaptable in treatment of all industrial applications.

SEWAGE TREATMENT

Coagulates over wide pH ranges and provides efficient operation regardless of rapid variations of raw sewage — Very effective for conditioning sludge prior to vacuum filtration or drying on beds.

COPPER SULFATE

COPPER SULFATE safely controls about 90% of microorganism normally encountered in water treatment plants efficiently and more economically than any other chemical.

SULFUR DIOXIDE HIGHEST QUALITY SO_2

SULFUR DIOXIDE is used most effectively for dechlorination in water treatment and to remove objectionable odors remaining after purification.

FREE BOOKLET—Let us send you free a 38 page booklet that deals specifically with all phases of coagulation.

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TENNESSEE CORPORATION

Water Supply & Treatment

This view of the cylindrical hollow cells shows the stabilizing struts placed in every other cell and the openings between cells that permit inspection of the entire wall interior.

The completed wall before backfilling. The free-riding roof slab will rest on the top of the cylinders, permitting it to expand and contract with temperature changes.

St. Louis Reservoir—First of Its Kind

SLOPING cylindrical concrete shells provide a virtually foolproof barrier against penetration of ground water into the City of St. Louis drinking water supply. This patented design, originated by E. E. Easterday, chief engineer of the St. Louis Water Department, is being used in the construction of a huge, filtered-water storage basin. The underground reservoir has a capacity of approximately 10,000,000 gallons.

Each wall of the square basin is over 200 feet long and 30 feet high and consists of 15 hollow concrete cells, interconnected so that inspectors can examine the interior for the entire length of the wall. Five struts stabilize every other cell, but are omitted from the intervening cells so the arch can flex under expansion or contraction of the structure.

The 225-foot-square roof is free-floating, unconnected with the walls, and rides over the top of the cells during expansion and contraction. It is of concrete flat-slab construction, with tar and gravel upper surface, supported by 225 columns. The reservoir top is three feet below the ground surface. An interior drainage system at the roof and ground levels carries away any ground water that might penetrate the cells. The ground-level drainage system is porous to relieve hydrostatic pressures from flood or high-water tables.

Basic Construction

Basin construction required the use of approximately 11,500 cubic yards of concrete reinforced with 928 tons of Laclede multirib round reinforcing bars and other steel reinforcement.

The basin has been designed and construction is being supervised by engineers of the St. Louis Water Department.

Water-Rate Breakdown Shows Revenue Potential

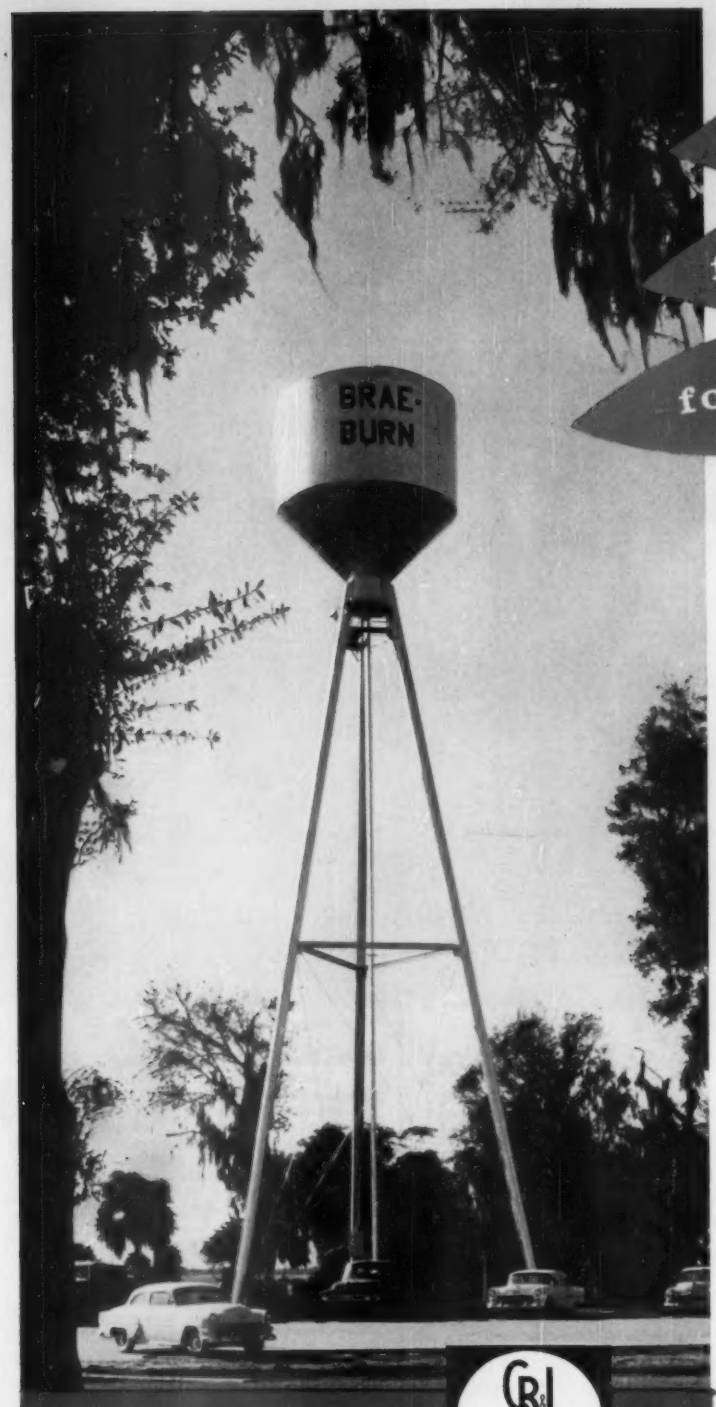
WHEN St. Cloud, Minn. found that it had to have more funds to construct a needed water improvement, Superintendent Fred Thielman and City Engineer R. W. Teague made a series of water-rate analyses to see how the rates should be adjusted to produce the highest return at the least inconvenience to the water users. Typical of their analyses is the one shown below that discloses the earning potential of the rates selected:

Group cu ft quarter	Bills per year	Average Use per quarter	Rate	Average Bill per quarter	Yearly Revenue
First 500	1,408	316	$1.50	$ 1.50	$ 2,112
Next 500	3,672	747	.30	2.24	8,240
" 1,000	7,666	1,440	.30	4.32	33,200
" 2,000	4,456	2,682	.30	8.05	35,900
" 6,000	1,268	5,574	.225	15.50	19,650
"34,000	381	20,456	.225	49.10	18,700
" 6,000	12	46,693	.15	106.00	1,270
Yearly Rate					
200,000 to 600,000	98	84,150	.15	126.25	12,372
Excess	30	455,843	.135	614.00	18,421

The yearly rate accounts for approximately 35% of the volume of water delivered and about 25% of the total revenue.

Rate Adjustment

The groups were selected by checking past records on water usage. Proposed rates were then used to determine anticipated annual meter revenue. After several analyses the city adopted a rate that would produce an annual meter return conservatively estimated at $165,000. Actual meter income amounted to $168,000 for the first year after the adjustments were made.



for SERVICE

for simplicity...

for economy

HORTON®

tripod

elevated water tank

This functional and completely modern tank is CB&I's practical method of providing economical gravity pressure water supply for small municipalities and private water systems.

Designed and built in accordance with AWWA or standard fire underwriters specifications, the Horton Tripod is furnished to the exacting standards which have made CB&I elevated water storage structures the *municipal preference* for decades. The all-welded structure is smooth and streamlined. It is easy and economical to paint and maintain and does not require elaborate foundations.

Write your nearest CB&I office for details on Horton Tripod tanks.

STANDARD SIZES

Horton *Tripod tanks* are built in capacities from 15,000 to 75,000 gallons. Standard heights to bottom range from 25 to 125 feet.

M52C

CB&I

Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston • Kansas City (Mo.)
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San Francisco • Seattle • South Pasadena • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY,
GREENVILLE, PA. and at NEW CASTLE, DELAWARE.
In Canada: HORTON STEEL WORKS LTD., TORONTO, ONTARIO

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Any Car a Mobile Radio Unit in One Minute

251 Portable/Mobile converts any car into a two-way radio unit in 60 seconds. Compact, transistorized, with powerful transmitter and super-sensitive receiver, it is said to save ⅓ the cost of the ordinary two-way radio. For details, write INDUSTRIAL RADIO CORP., 462 N. PARKSIDE, CHICAGO, ILL.

Water Control Gates

252 Control gates that assure maximum watertightness, long service life and fast, easy operation contribute to efficient water control at cost savings. Armco supplies water control gates to cover the wide range of operating heads and sizes normally found in municipal applications. For literature, write PRODUCT INFORMATION SERVICE, ARMCO DRAINAGE & METAL PRODUCTS, INC., MIDDLETON, OHIO.

A Scooter Truck

253 Design changes in the 1959 Model 780 truckster have been made to up-grade performance, safety and operation of this versatile, light hauling vehicle with up to 800-pound payload. All 12 advances are discussed in literature available from CUSHMAN MOTORS, 1002 N. 21ST, LINCOLN, NEBR.

28 Miles OF SEWER CLEANED FOR FREE... WITH SEWERODER

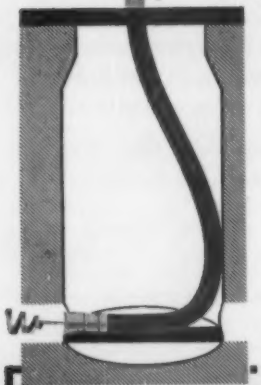
HOW?

1950

10,560 ft. (old method) @ 50¢ ft. $5,280.00

1958

158,400 ft. with SEWERODER @ 3¢ ft. $4,752.00



It's Ezy To Figure

The SeweRoder cleans 30 miles of sewers for what it formerly cost to clean 2 miles...Result —28 miles cleaned free.

Saving the Tax Dollar

In the past ten years many cities have taken advantage of the efficiency of the SeweRoder. Efficiency which enables the cleaning of up to three or four thousand feet of sewers per day with the consequent saving of thousands of dollars of taxpayers' money.

FLEXIBLE INC.

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351 W. JEFFERSON BLVD., DALLAS, TEXAS

WORLD'S LARGEST MANUFACTURERS OF PIPE CLEANING TOOLS

Asbestos-Cement Sewer Pipe Design Data

254 A new booklet on engineering classifications, which contains a handy crushing table for asbestos-cement sewer pipe based on the Marston formula, is offered by KEASBEY & MATTISON CO., AMBLER, PA., manufacturer of K & M asbestos-cement sewer pipe, designed to simplify planning, installation and maintenance of sewer lines.

Standby Electric Plants

255 When emergencies cut off regular power supplies, it is essential that reliable emergency power automatically take over to maintain the operation of services and equipment essential to the public welfare. Kohler standby electric plants are engineered for such work. *Folder* D-12, available from KOHLER CO., KOHLER, WIS., describes them.

High-Speed Billing of Taxes, Utilities

256 Monthly, quarterly or cycle billing—the Burroughs Sensimatic Accounting Machine does them all with speed and accuracy. It prints the original bill, original ledger and running journal automatically, brings efficiency and economy to fiscal record keeping. For details, write BURROUGHS DIV., DETROIT 32, MICH.

Traffic Control Signs

257 Embossed traffic control signs offer three advantages: greater legibility, greater rigidity and strength, longer life. The Miro-Flex *Sign Catalog* contains a complete line of embossed traffic signs designed according to recommendations in the *Manual on Uniform Traffic Control Devices*. For your copy, write MIRO-FLEX CO., INC., 1824 E. SECOND ST., WICHITA, KANS.

Hydraulic Controls for Incinerator Grates

258 Hydraulically operated dumping grates are now available for all Nichols Monohearths. They require no additional room or alteration to present plant, contribute added safety, and provide the labor-saving ease of mechanical grate operation. For details, request *Layout Drawing No.* F-6304 from NICHOLS ENGINEERING & RESEARCH CORP., 70 PINE ST., NEW YORK 5, N. Y.

Up-to-Date City Mapping

259 Aerial photomaps provide a valuable planning guide for solving city growth problems. Precise topographic maps can be used for planning street profiles and grades, sewage and drainage systems, etc. AERO SERVICE CORP., PHILADELPHIA 20, PA., has the experienced engineers and plotting instruments to handle entire mapping jobs. Write for details.

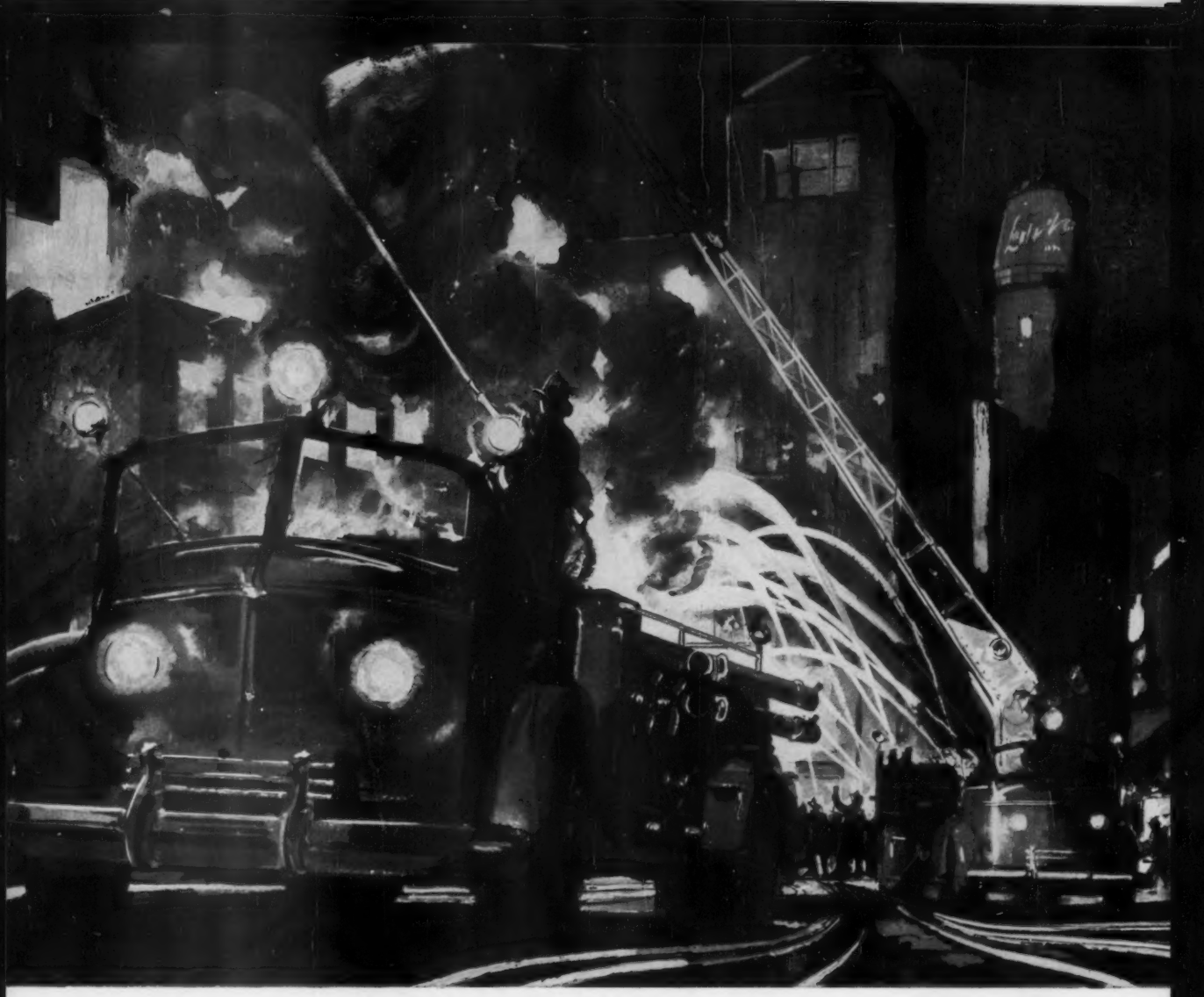
Plow-Equipped Grader Battles Snow

260 An Austin-Western grader equipped with giant V-plow and wing has the vital push-pull power for deep plowing, the ability to resist powerful side-thrust when winging or widening, and works short radius curves without backing. For details, write AUSTIN-WESTERN, CONSTRUCTION EQUIPMENT DIV., BALDWIN-LIMA-HAMILTON, AURORA, ILL.

Portable Pedestrian Overpass

261 You can get as many as 250 persons per minute across busy streets and highways with this low cost pedestrian overpass. Built entirely of steel, its 6-foot wide walkway is protected by close-mesh fencing; its floor is skid-proof. For details on the portable Sky-Walk, write C. D. SCARLETT CO., INC., 311½ E. GRAND RIVER AVE., LANSING 5, MICH.

(See page 34 for more Bulletins)



Behind the fire fighters...water wells by Layne

Municipal water requirements are as varied as they are vital. The reliability of a water source is foremost when human lives and happiness are at stake.

For over 75 years, Layne & Bowler, Inc. and its associate companies have pioneered and specialized in the development of ground water. Their only concern—their only business is water.

Layne water wells and pumps circle the globe. Various conditions and problems have been met and solved. This know-how, acquired during three quarters of a century of experience, results in efficient, economical wells—the basis of most municipal water systems. Layne wells provide the good beginning.

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General Offices and Factory — Memphis 8, Tenn.
Layne Associate Companies Throughout The World

Water Wells • Vertical Turbine Pumps • Water Treatment

TO: LAYNE & BOWLER, INC.
MEMPHIS 8, TENN.

Gentlemen: Please send me bulletin No. 27.

*Name*_____

*Title*_____

*Organization*_____

_____

*Address*_____

*City*_____

*State*_____

MI-CO PARKING METERS

are fireless revenue producers

MI-CO Meters help you gain two important objectives: 1) improved traffic control; 2) additional revenue that runs into substantial figures. In most communities the surplus revenue from MI-COs has financed the purchase of other equipment to help bring order out of traffic chaos.

MI-COs are well-known for their high productivity, long life, and low maintenance. It is said of these meters—"they earn more because they are seldom out of order." And when a MI-CO needs attention, quick servicing features enable service men to make adjustments in a few minutes at the meter location. They are flexible, too; MI-COs may be set for any number of hours up to 24, on various coin combinations, and *one coin slot* takes all denominations.

Before you buy or replace parking meters, be sure to learn how much more MI-CO has to offer. An investment in MI-CO Parking Meters pays big dividends over long periods of time.

Consider, too, the MI-CO Security Collection System . . . the most efficient method yet devised for collecting parking meter coins. It's fast dependable, tamper-proof, and adaptable to MI-CO Manual Meters already installed. Write for complete information.

M
A B C

A Symbol of High Quality

MI-CO PARKING METERS, P. O. BOX 668-AC, COVINGTON, KENTUCKY

(The Michaels Art Bronze Co., Inc.)

OTHER MICHAELS PRODUCTS: Architectural Metal • Curtain Walls
Display Cases • Reversible Windows • Tablets • Memorials • Signs

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50.

Asbestos-Cement Water Pipe

262 Neither aggressive water nor corrosive soil will trouble Transite asbestos-cement water pipe. Moreover, it can be installed quickly and economically, and its smooth interior helps keep pumping costs low. For information on Transite water pipe (and sewer pipe), write JOHNS-MANVILLE, DEPT. EN, BOX 14, NEW YORK 16, N. Y.

Rotary Mower Trims Lawn Problems

263 The Wonder-Boy 575, a 32-inch rotary motor powered by a 5¾-hp Briggs and Stratton engine, trims lawns at the rate of 1¾ acres per hour. It is highly maneuverable, able to trim close to fences, shrubs and other obstructions and turns within a 4½-foot radius. For details, write SIMPLICITY MFG. CO., 5951 SPRING ST., PORT WASHINGTON, WIS.

New Photoelectric Control

264 G-E's twist-lock photoelectric control is designed to bring long-range economy to street lighting circuits. Built-in Thyrite guards against damage from induced voltage surges, eliminates added cost of external secondary arrestor. The new control fits G–E mercury "Power Pack" and mercury or filament Form 101 hoods. Details are available from GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

All-Purpose Bituminous Paving Mix Laid Cold

265 Enslag Colmix combines the stability of hot mixes with the convenience and economy of pre-mixed paving materials to produce a dense, durable, uniform, skid-resistant surface. Its recommended uses and specifications are described in literature available from VULCAN MATERIALS CO., BIRMINGHAM SLAG DIV., P. O. DRAWER 155, BIRMINGHAM, ALA.

3-Way Traffic Control

266 A new bulletin from ELECTRONIC PROTECTION INC., 2085 N. HAWTHORNE AVE., MELROSE PARK, ILL., explains how El-Tec radio interconnection system of traffic control provides more efficient use of existing streets, moves traffic more safely by moving it progressively and gives greater assurance of accident-free runs by emergency vehicles.

For More Effective Ice Control

267 The latest information on calcium chloride-rock salt mixtures for ice control is available in booklet form from COLUMBIA - SOUTHERN CHEMICAL CORP., ONE GATEWAY CENTER, PITTSBURGH 22, PA. Properties, adaptability, storage, mixing methods, recommendations for various storm conditions are included. Write today for your copy.

Versatile Motor Grader

268 This motor grader loads, cleans street rubble, stockpiles, rebuilds and maintains shoulders and feathers windrows while patroling. Its extra down force helps retain front-end stability; its roll-away moldboard gives faster oil mix, bigger grading jobs. With it, spring street maintenance work can be done faster and at less cost. For details, write ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIV., MILWAUKEE 1, WIS.

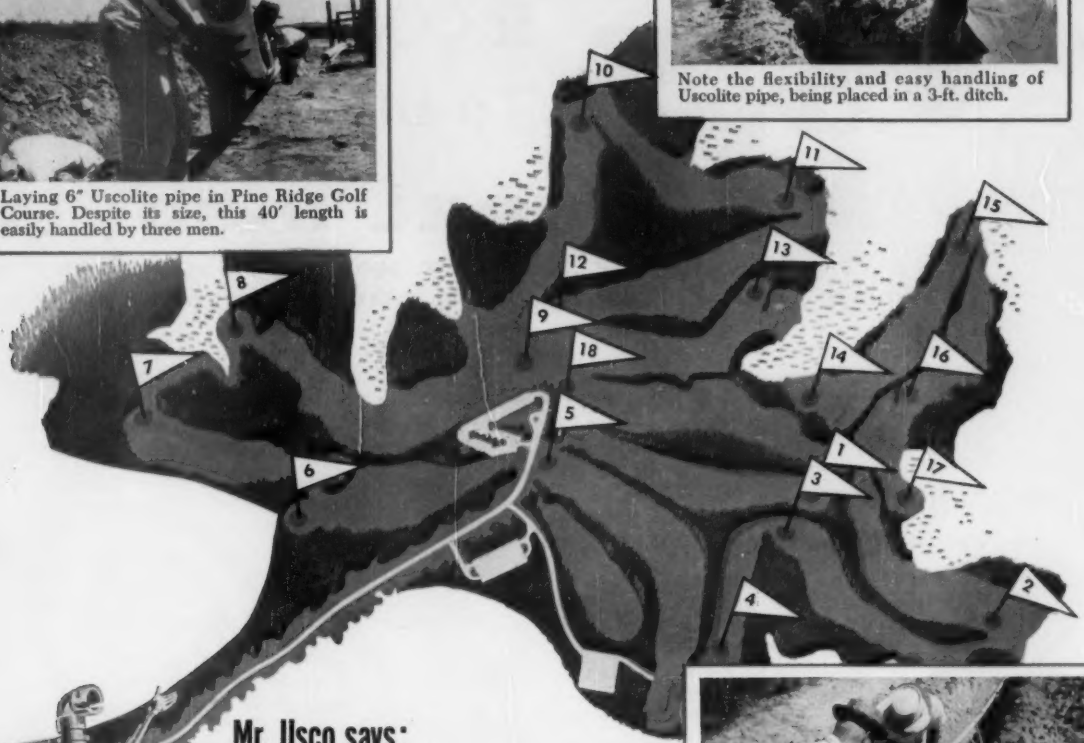
(See page 39 for more Bulletins)

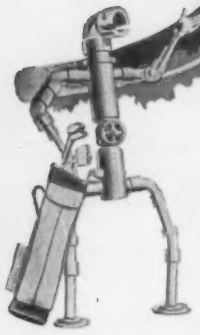
US RUBBER

USCOLITE PLASTIC PIPE

Laying 6" Uscolite pipe in Pine Ridge Golf Course. Despite its size, this 40' length is easily handled by three men.

Note the flexibility and easy handling of Uscolite pipe, being placed in a 3-ft. ditch.





Mr. Usco says:

The grass is always greener with Uscolite Pipe

Joining Uscolite pipe with UscoWeld* solvent-weld fittings. Each joint takes about 90 seconds to make up and is locked for life.

Take a look at Baltimore's lush new 6600-yard municipal golf course, Pine Ridge. Its beautiful greenery is nourished by a special watering system which flows through Uscolite® plastic pipe. Over 19,000 feet of Uscolite pipe (in sizes from ¾" to 6" i.d.) spread into an underground network running to tees, greens, clubhouse and certain fairway locations.

Cost-conscious Baltimore officials selected Uscolite because:

– Its smoother finish offers less friction-resistance than metal, hence, a smaller i.d. (and less expensive) pipe is used.

– Uscolite's light weight makes it easier and quicker to install with less manpower; installation costs cut in half.

– Pipe's flexibility means it can be curved without fittings.

– Solvent-weld fittings cut assembly time in half.

– Uscolite has high impact resistance and is absolutely impervious to corrosion by soil or water; scale will not accumulate and reduce flow.

Uscolite—the complete line of plastic pipe in America—carries the National Sanitation Foundation Seal of Approval.

• • •

For name of your nearest distributor, or more information, write to Dept. USCO, using address below.

US RUBBER

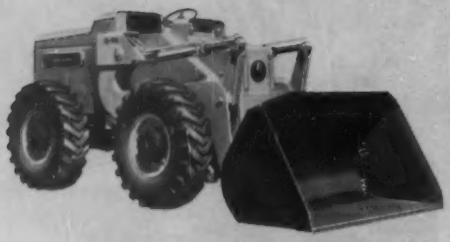
Mechanical Goods Division

*Patent applied for

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.



It COSTS LESS To BUY the BEST

NEW MODEL H-90

GIVES YOU MORE VALUE FOR YOUR MONEY...MORE CARRY CAPACITY...MORE PERFORMANCE...MORE DEPENDABILITY

When it comes to investing money in equipment which must earn money, you can't afford anything but the best. Thousands of owners have found this to be true of the famous HO "PAYLOADER"... thousands more will find it even more so in the new, improved Model H-90.

Full 9,000-lb. Carry Capacity

You can lift loads up to 15,000-lbs., but you can CARRY LOADS up to 9,000-lbs. which means you can use buckets ranging up to almost 4 cu. yds., depending on the weight of the material. Because the bucket tips back 44° at ground level, you can carry 9,000-lb. loads closer to the machine and lower with better balance, stability, speed and less spillage. All excess "dead weight" has been eliminated and through balanced design, the H-90 can carry more pounds in the bucket than comparable machines weighing as much as 3,000-lbs. more.

More Powerful Breakout

A breakout force of 21,000-lbs., almost the entire weight of the machine, can be applied to the cutting edge of the bucket through unique pry-out pads. This enables you to get full bucket loads in the toughest digging.

Choice of Four Engines

The new H-90 gives you a choice of two gasoline engines and two diesel engines: either the 125 H.P. Hercules WXLC-3 or the 134 H.P. I-H U-450 in the gasoline, and the 122 H.P. Cummins JN-6-B1 or the 126 H.P. G.M.C. 4-71 in the diesel.

Extra Heavy-Duty Planetary Axles

Because tractor-shovels of this size and capacity are subjected to greater than average stresses and strains, the H-90 "PAYLOADER" planetary axles are special, extra heavy-duty type with power transfer differentials.

Full Protection for Long Life

The brakes of the front wheels are sealed to prevent scoring and glazing by foreign matter. Large oil-bath air filters and cartridge-type oil filter protect the engine. Two cartridge-type oil filters protect the hydraulic system oil and the transmission-torque converter oil.

Easy, Full-Power Operation

Power-shift transmission with three speeds forward and reverse, plus twin-cylinder power-steer and 4-wheel power brakes, assure fast operation with minimum operator effort... promote a high production rate the full shift.

More Attachments...More Uses

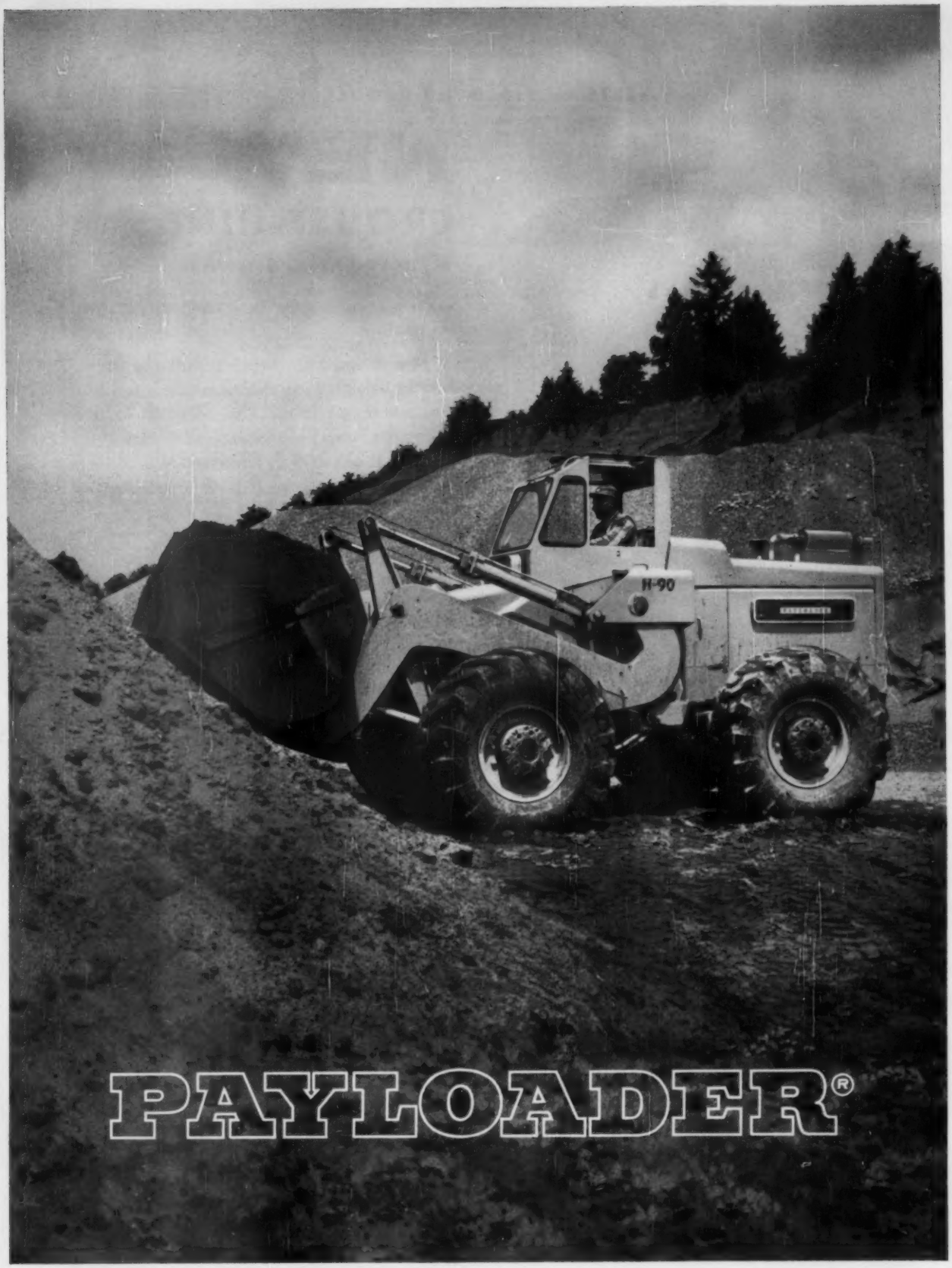
The widest choice of attachments are available, including these exclusive ones: Drott 4-in-1 bucket, Superior side-boom, Galion vibratory compactor, Ram black-top spreader... also blower, "V" and blade plows, angling back filler, scarifier, winch and others.

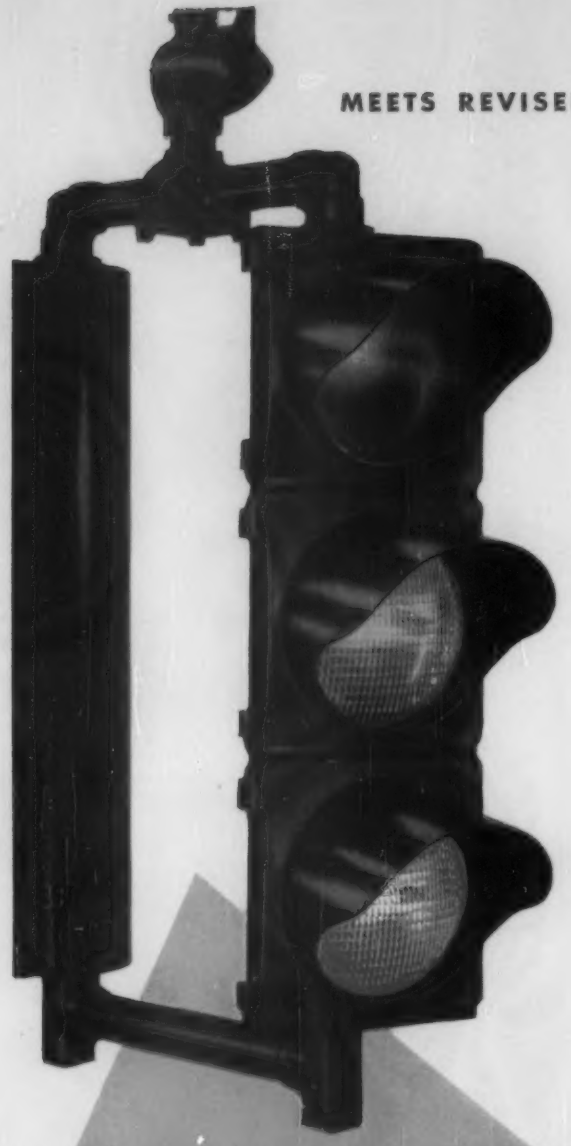
THE FRANK G. HOUGH CO. 1-B-1
710 Sunnyside Ave., Libertyville, Ill.
Send data on new Model H-90 PAYLOADER

Name _____
Title _____
Company _____
Street _____
City _____ State _____

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY


11-90
PAYLOADER®



MEETS REVISED I.T.E. SPECIFICATIONS . . .

NEW

CROUSE-HINDS

M/3 TRAFFIC SIGNAL

with a completely new optical system

New, 8″ lens design improves light distribution. New high-polish Alzak aluminum reflectors eliminate sun phantoms. New, adjustable-focus receptacles compensate for lamp variations. Completely new in every important way . . . the M/3 more than meets the latest Institute specifications.

Segmented construction enables the assembly of 1 to 5 sections, each self-contained with integral top and bottom. May also be assembled with sections of the standard 12″ signal.

For more information send for Bulletin 2709. For further help, a nation-wide network of Crouse-Hinds Sales Engineers and Distributors is ready to assist you. Call or write any office.

CROUSE HINDS

MAIN OFFICE AND FACTORY: SYRACUSE, NEW YORK
Crouse-Hinds Company of Canada, Ltd., Toronto, Ont.
Crouse-Hinds Instrument Company, Inc., Silver Spring, Maryland

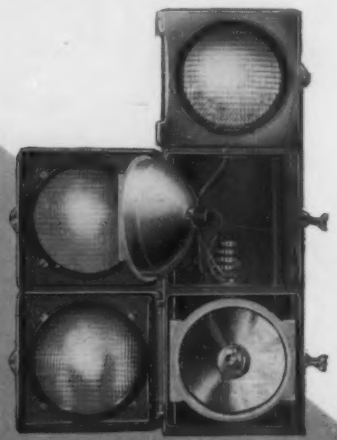
• CONDULET® ELECTRICAL EQUIPMENT (Explosion-Proof and Conventional) • FLOODLIGHTING
• TRAFFIC CONTROL SYSTEMS • AIRPORT LIGHTING and WEATHER MEASURING EQUIPMENT •

These products are sold exclusively through electrical distributors. For application engineering help, contact one of the following offices: Atlanta Baton Rouge Birmingham Boston Buffalo Charlotte Chicago Cincinnati Cleveland Corpus Christi Dallas Denver Detroit Houston Indianapolis Kansas City Los Angeles Milwaukee New Orleans New York Omaha Philadelphia Pittsburgh Portland, Ore. St. Louis St. Paul Salt Lake City San Francisco Seattle Tulsa Washington
Resident Representatives: Albany Baltimore Chattanooga Reading, Pa. Richmond, Va.

MAINTENANCE SIMPLIFIED WITH NEW M/3

Swing-away doors, snap-out reflector assemblies, and Faston connectors speed up lamp replacement and wiring. Locking rings (adjustable in 5° increments) lock the signal head to the bracket arm in any direction. Large, square-head set-screws are easy to handle. Hoods are fitted with four, bayonet-type slots for quickest installation.

To eliminate service problems due to dust and moisture, the M/3 uses Neoprene gasketing to water-seal all doors, a Buna-N "O"-ring for a water-tight connection between signal head and bracket arm, and a specially blended synthetic rubber gasket to enclose the optical system. The strong, die-cast aluminum body is designed to meet the test of years of service.



FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50.

Fiber Expansion Joint Filler For Concrete Pavements

269 Wherever concrete meets concrete—on streets, highways, bridges, at airports—durable asphalt-impregnated Flexcell Filler forms a neat, smooth expansion joint. It compresses without extruding, is resilient, bonds firmly to concrete, is easy to cut and install, highly moisture resistant, and is protected against dry rot and termite attack. For details, write THE CELOTEX CORP., 120 S. LA SALLE ST., CHICAGO 3, ILL.

1959 Two-Way Radio Parts Catalog

270 Communications Buyer's Guide for 1959 is a comprehensive catalog of two-way communications parts, kits, test equipment and accessories. It is profusely illustrated with photos, drawings and diagrams. For your copy, write on your letterhead to MOTOROLA COMMUNICATIONS AND ELECTRONICS INC., PARTS DEPT., 4910 W. FLOURNOY ST., CHICAGO 44, ILL.; request *Communications Buyer's Guide* 1-59.

Chemical Control of Sewage Odors

271 Cloroben, a clear, light-amber liquid, effectively controls sewage odors, dissolves grease and suppresses sulphide formation with safety, efficiency and economy. It applications in up-sewer treatment, sewage treatment plant, septic tank and cesspools are described in a *Technical Bulletin*, available from CLOROBEN CHEMICAL CORP., 115 JACOBUS AVE., S. KEARNEY, N. J.

Standby Electric Plants

272 To assure continuation of vital community services when disaster strikes, it is essential to have sufficent standby electric power. A proved Allis-Chalmers generator and switchboard matched to a proved A-C engine produces a Sure-Power generating set that will furnish power when needed. For complete information on sets up to 300 kw in size, write ALLIS-CHALMERS, MILWAUKEE 1, WIS.

Reduces Brush Haulaway Costs

273 The 12 small staggered knives (equally spaced every 45° over a rotary cylinder) of the M & M Beaver quickly convert useless brush, branches and limbs into wood chips that can be used for mulch and hauled away at nominal cost. For complete information, write MITTS & MERRILL, 1003 S. WATER ST., SAGINAW, MICH.

Pump and Check Valves

274 Features, construction, application and installation details of combination pump valves and silent check valves for liquid and gas services of almost any pressure requirement are clearly presented in a 16-page bulletin now available from COMBINATION PUMP VALVE CO., 851 PRESTON ST., PHILADELPHIA 4, PA.

Facts About Street Lighting

275 Finding it difficult to sell the importance of an up-to-date street lighting program to your municipality? Then you'll want to read "Octa-Tube Lighting". It explains the benefits modern lighting brings to a community. For your copy, write MILLERBERND MFG. CO., WINSTED, MINN.

These Passenger Cars Provide 4-Way Economy

276 Budget-minded municipalities will appreciate the four-way economy of The Lark. Not only is it low in initial cost, but it turns in peak performance on low-cost, regular gas. Design minimizes downtime and maintenance costs; shorter length saves almost 18 square feet of valuable garage space. Details on this excellent "departmental car," are available from MR. A. E. FITZPATRICK, MGR.—FLEET SALES, STUDEBAKER-PACKARD CORP., SOUTH BEND 27, IND.

Safe Chlorine Control

277 The job of any chlorinator is to provide safe chlorine control. The W & T V-notch chlorinator does this by permitting the metering of chlorine in exact amounts. The booklet, "The V-Notch Story," describes its features and its application to municipal water and sewage treatment. For your copy, write WALLACE & TIERNAN INC., 25 MAIN ST., BELLEVILLE 9, N. J.

Packs More Refuse

278 There's 25% more available capacity in each Hobbs-Hydepak refuse collection body. This means crews can make more pickups, load more refuse per trip, reduce costly trips to refuse disposal points. In addition, these enclosed refuse bodies confine refuse, liquids and odors. They are sanitary, safe and simple to operate. For details, write HOBBS-HYDEPAK DIVISION, HOBBS TRAILERS, 611 N. MAIN, FORT WORTH, TEXAS.

Power Mowers for All-Around Maintenance

279 Tough, rugged and versatile, Devere power mowers combine the operating features and mow-ability necessary for all phases of proper lawn maintenance. Their rotary scythe suction-lift cutting action cuts all growth cleanly and powerfully. For complete information, write DEVERE COMPANY, RACINE, WIS.

Bill Receipters

280 Whether your receipting operations are small or large, for taxes, utilities, fines, fees, Matthews bill receipting machines will speed them up and make them more efficient. These units stamp "paid," date, cut off stubs and automatically deposit them in a securely locked compartment. Built-in band dater and adjustable guides contribute to operating ease. For details, write JAS. H. MATTHEWS & CO., 3942 FORBES ST., PITTSBURGH 13, PA.

Transistorized Hazard Warning Lights

281 Field tests made at both 800 and 2000 yards prove Visi-flash more visible in all types of weather than other flashers. Add to this record, reliability, low cost, toughness and easy maintenance. The result? A transistorized hazard warning lighting that provides maximum safety. For details, write R. E. DIETZ CO., 114 LEAVENWORTH, SYRACUSE, N. Y.

Caterpillar Products

282 Is the title of a new 23-page booklet which parades and gives brief specifications and applications for Cat products. Track- and wheel-type tractors, Traxcavators, bulldozers, crawler-drawn scrapers, rippers, graders, tool bars and engines are all included. For your copy, write CATERPILLAR TRACTOR CO., PEORIA, ILL.

Improves Circular Settling Efficiency

283 Through a unique, proven hydraulic principle the Rex Rim-Flo Clarifier brings higher efficiency to circular settling tanks. Positive scum removal without surface skimming is assured, as is full utilization of tank volume, positive settling and economy. For details, write CHAIN BELT CO., MILWAUKEE 1, WIS. Ask for *Bulletin* 315-9A1.

Self-Parking Equipment

284 Because of substantial economies derived, user self-parking is growing fast in municipal off-street parking systems. MAGEE-HALE PARK-O-METER CO., 3909 WILLOW SPRINGS RD., OKLAHOMA CITY 12, OKLA., is a reliable source of major items for any self-parking program. Its Park-O-Meter, Park-O-Gate and Ticket Spitter are fully described in literature available from the company.

Improved Way to Clean Sewers

285 Numerous cities have reduced sewer cleaning costs by as much as 75%. They've done this by using a Sewerking to cut away stoppage. You can get full facts on this all-power, manhole-to-manhole cleaning machine by writing to O'BRIEN MFG. CORP., DEPT. AC-159, 5632 NORTHWEST HIGHWAY, CHICAGO 46, ILL. *Request the Sewerking Catalog.*

Multipurpose Air Sprayers Protect Trees, Shrubs

286 Each of these concentrate, semiconcentrate and dilute air sprayers can vary the range of their spray pattern to suit the demands of the job at hand. Typical of their efficiency is the discharge of 42% of air in tops of trees, 33% in the center, 25% in lower sections. For details, request *Catalog Section* 310 from THE E. F. MYERS & BRO. CO., 249 ORANGE ST., ASHLAND, OHIO.

Dry Bore Horizontal Auger Drill

287 This self-contained, one-man operated unit requires a ground opening of only 4 feet x 10 feet and can be lowered in operating position by a backhoe. It drills holes from 50 to 100 feet long and holds a straight line. Able to drill under streets and railroad tracks, it is available in eight sizes, from 2½ inches to 20 inches in diameter. For details, write J. R. PREWITT & SONS, DEPT. AC, PLEASANT HILL, MO.

Unclogs Sewer Drains by Water Impact

288 By releasing air pressure on a solid shaft of water, the Plumbers Flushing Gun dislodges the most stubborn obstruction from sewer drains (up to 200 feet) ranging in diameter from ½-inch to 6 inches. Removal of pipe, grease trap or cross piece is unnecessary. Operation and application details are told in a free booklet, available from MILLER SEWER ROD CO., DEPT. A-1, 4642 N. CENTRAL AVE., CHICAGO 40, ILL.

Lays 25%-50% More Traffic Line Per Day

289 Designed for heavy duty, the Mark-Rite 9000 Linemaster stripes 1, 2 or 3 lines solid or skip simultaneously, issuing straight or curved lines in one or two colors and in widths from 2 inches to 6 inches. It turns on a 6-foot radius and climbs grades up to 20%. For details, write UNIMASCO, INC., 424 W. REDONDO BEACH BLVD., GARDENA, CALIF.

Photoelectric Street Lighting Controls

290 Sun Switch is adaptable to luminaires, pole or cross-arm, ballast or pole-top installations. It turns street lights on and off automatically in accordance with daylight intensity. For complete information, write SUN SWITCH DIV., RIPLEY COMPANY, INC., MIDDLETOWN, CONN.

All-Steel Files for Maps and Drawings

291 "Can't-fold" plans, tracings, maps and blueprints up to 33" x 42" in size can now be neatly and safely filed in new sturdy all-steel lock-equipped Flatfiles. For details, and information on jumbo jute-board Flatfile folders, write ROSS-MARTIN CO., P. O. BOX 800, TULSA 1, OKLA.

(See page 40 for more Bulletins)

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Sluice Gate Has Flush Bottom Closure

292 The unusual design of the HY-Q flush bottom closure sluice gate proves its practical advantage for water flow control in situations where construction economies are important, maximum flow or complete drainage is needed, where clearance problems demand lowest possible invert. For details, request *Catalog* 75 from RODNEY HUNT MACHINE CO., WATER CONTROL APPARATUS DIV., ORANGE, MASS.

One-Man, One-Car Radar Speed Control

293 The Patrolmaster 500, a portable, triple range radar unit designed for one-man, one-car operation, affords selectivity of range to suit traffic conditions. It economically effects speeds control, has court acceptance, and doubles the efficiency of operating police force. For details, write GENERAL ELECTRONICS DIV., MONUMENT ENGINEERING CO., 1625 BELLEFONTE ST., INDIANAPOLIS, IND.

Winter Protection for Pavements

294 When used in a liquid coating over new or old asphalt pavements, Jennite J-16 seals out moisture and prevents absorption. It reduces cracking and surface crumbling frequently caused by accelerated thawing and freezing cycles. For complete data, write MAINTENANCE INC., WOOSTER, Ohio; ask for *Bulletin* LL-2992.

3,000 Cutting Hours

295 This is the average life span of Locke power lawn mowers and trimmers, and it is one-third longer than mowers of comparable sizes. In addition, these units maneuver easily around overhanging shrubbery and raised borders and handle well on the straightaways. For compete details, write LOCKE MOWER DIV., LOCKE STEEL CHAIN CO., 1315 CONNECTICUT AVE., BRIDGEPORT 1, CONN.

New Wheel Tractors

296 Special features and specifications of International Harvester's line of new wheel tractors in six power sizes ranging from 12 to 72.5 hp are fully described in 16-page *Catalog* CR-1374-H. For your copy, write CONSUMER RELATIONS DEPT., INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

Bleachers and Grandstands

297 Whether portable or permanent, wood, steel or aluminum, Winkler bleachers and grandstands are built extra strong to provide the maximum safety in spectator seating. *Catalog* G-1/W1 fully describes these mass seating units; for your copy, write WINKLER MFG. CO., INC., P. O. BOX 336, BATON ROUGE, LA.

Lowers Cost of Overhead Maintenance

298 Fifty per cent is a sizable reduction in costs, yet many cities have trimmed that much from the cost of tree trimming, lamp replacement and overhead utility line work by using Skyworker aerial lifts. For literature detailing the several models and lease plans available, write EMHART MFG. CO., SKYWORKER DIV., 761 WINDSOR ST., HARTFORD 1, CONN.

New Controls for Elevated Water Tanks

299 A new system for altitude tank control, as described in *Bulletin* Ref. No. 650.20A-1, consists of a Builders-Providence Model BV tight-closing rubber-seated buttlerfly valve and a B-I-F altitude controller. It is used at the base of elevated water storage tanks to maintain constant water supply in the elevated tanks for emergency use. Write B-I-F INDUSTRIES, INC., 345 HARRIS AVE., PROVIDENCE 1, R. I.

Two Wheel Ditchers

300 Wheel ditcher Models 772 and 773 are new to the Barber-Greene line. Their maximum digging depth is 5'6"; digging widths range from 14 to 24 inches. Each capably handles numerous applications in the water, gas and electric fields. The 773, with greater flotation, is particularly suitable for highway drainage and for reclaiming buried pipe. For details, write BARBER-GREENE, 400 N. HIGHLAND AVE., AURORA, ILL.

New 4-Wheel-Drive Front-End Loader

301 The H-90 Payloader (it replaces Hough's HO model) has a breakout force of 21,000 pounds, bucket tipback of 44° at ground level, load carry capacity of 9,000 pounds at travel speeds. Improved design contributes substantially to increased operation ability and extra stability and safety. For details, write THE FRANK G. HOUGH CO., 710 SEVENTH ST., LIBERTYVILLE, ILL.

Makes Clogged Mains Like New

302 Clogged water and sewer mains are fully restored to original capacity by the Power-Rodder, which rebores 1,000 feet of pipe in one operation. Less expensive than the cost of new mains, this procedure is also efficient. For details, and to arrange for a free survey of your needs, write NATIONAL POWER RODDING CORP., 1000 S. WESTERN AVE., CHICAGO 12, Ill.

1959 Ephemeris for Surveyors

303 The 1959 Gurley Ephemeris, now available to surveyors and engineers, makes it possible to determine Polaris in a fraction of the time once required. Its 96 pages include an Almanac listing 28 selected stars and giving complete instructions for determining azimuths. For copies of the Ephemeris, write W. & L. E. GURLEY, TROY. N. Y.

Rubber Seated Butterfly Valves

304 Kinney rubber seated butterfly valves for water works and sewage treatment plant use are manufactured for shut-off pressures to 125 psi and pipeline velocities of 16 fps. They are ideal where absolute bubbel-tight shut-off is required. For details, write S. P. KINNEY ENGINEERS, INC., 201 SECOND AVE., CARNEGIE, PA.

Municipal Incinerators

305 Faced with an incineration problem? Then let the experience of MORSE BOULGER DESTRUCTOR CO., 80 FIFTH AVE., NEW YORK 11, N. Y., help you. Write for *Bulletins* 183 and 100, which, respectively, describe services and types of equipment available and contain a partial installation list of MB destructors.

Corrosion Protection for Metal Water Supply Lines

306 Two new bulletins have been received from PLASTICS & COAL CHEMICALS DIV., ALLIED CHEMICAL CORP., 40 RECTOR ST., NEW YORK 6, N. Y. "T. O. F. Solution" deals with corrosion protection for potable water tanks and pipes, and for other metal surfaces. "Waterworks Primer and Enamel", discusses corrosion and tuberculation controls for steel work of water supply and distribution projects.

Diesel-Powered Generator Can Use Low-Cost Fuel

307 The Hamilton-made Diesel 521 SA engine can operate on bunker-C residual fuel at only 11.6 c per gallon, as compared with 18.6 c for distillate fuels required with ordinary diesels. This meant a fuel cost savings last year of $44,000 for the city of Edmundston, New Brunswick, Canada. Literature on the Model 521 SA Diesel is available from HAMILTON DIV., BALDWIN-LIMA-HAMILTON, HAMILTON, OHIO.

Refuse Collection Film

308 This film documentary, applicable in any U. S. area with urban services, shows the problems encountered in successfully establishing and extending an urban service, in this case a system of municipal refuse collection and disposal in Los Angeles. To arrange for prints on loan of "Collector's Item," write CONSUMER RELATIONS DEPT., INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

Plywood Traffic Signs

309 A new catalog containing detailed information on PlyGlaze and PlyAloy plywood sign panels for traffic control has been released by ST. PAUL & TACOMA LUMBER CO., TACOMA 1, WASH. It is available to traffic engineers, highway officials and sign shops. Of particular interest is a section on the resistance of PlyGlaze and PlyAloy to weathering and vandalism.

Rugged, Low-Cost Fencing

310 Keystone Non-Climbable Fence provides low-cost protection for schools, storage yards, tennis courts, parking lots, etc. Made of copper bearing steel and Galvannealed to resist rust and pitting, it is available in heights up to 7 feet. For literature describing it, write KEYSTONE STEEL & WIRE CO., 7000 S. ADAMS, PEORIA 7, ILL.

Hydraulic Gang Mower

311 Slopes, hilly areas and straightaways are mowed with ease by the Highway Challenger, a hydraulic-lift 5-gang mower designed to increase mowing efficiency on highways, parkways, expressways, etc. This unusually maneuverable, highly mobile unit trims close to obstructions, cuts a full 11-foot swath. For details, write ROSEMAN MOWER CORP., EVANSTON, ILL.

Swimming Pool Water Heaters

312 Extra months of swimming enjoyment at municipal pools can be had by installing a pool heater. Burkay swimming pool heaters are fully automatic, easy to install and rust and corrosion free. They are available in a complete range of sizes. For details, write A. O. SMITH CORP., PARMAGLAS DIV., GALLAGHER BLDG., KANKAKEE, ILL.

Coagulation Booklet for Water, Sewage Treatment

313 A 38-page booklet that deals with all phases of coagulation is available from TENNESSEE CORP., 617-29 GRANT BLDG., ATLANTA, GA., manufacturer of Ferri-Floc, a free-flowing granular salt that can be fed through most standard equipment and proves a superior coagulant in water and sewage treatment.

Air-Powered Saw Does Work of Six Men

314 Whichever Ackley air-powered saw you select, you will find it to be a fast, efficient cutting tool that can reduce pruning, thinning and brushing costs by as much as 50%. Light and easy to use, it is ideal for public utilities, highway departments, etc. For literature, write WEED CONTROL SERVICE, INC., 2605 S. W. FIRST AVE., PORTLAND 1, ORE.

(See page 44 for more Bulletins)

with hundreds of communities heard from...

CAST IRON PIPE WINS THE VOTE

Recently a questionnaire was mailed to water utility managers all over the U. S. One question asked was: *What kind of pipe do you prefer and why?* With 42 states heard from, the vote is overwhelmingly in favor of cast iron! Here are typical comments:

"1. Cast iron pipe is permanent—long life. 2. Lined pipe cuts down complaints of 'red' or 'rusty' water. 3. Mechanical joints are time and labor-saving over other types of joints, and are more flexible."

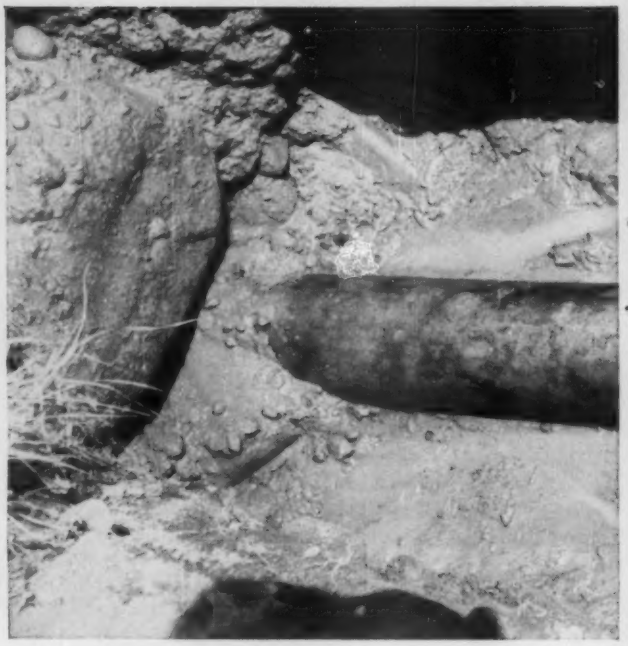
—Iowa

"Long life has been proven. I have personally observed pieces cut out of existing systems which were laid prior to the turn of the century. Such observations indicated the pipe to be as good as the day it was laid."

—Kansas

"Cast iron pipe has been in use for 200 years, and the record speaks for itself. All the other types have their use, but we would not recommend them in a well-built, expanding water works distribution system or large transmission lines."

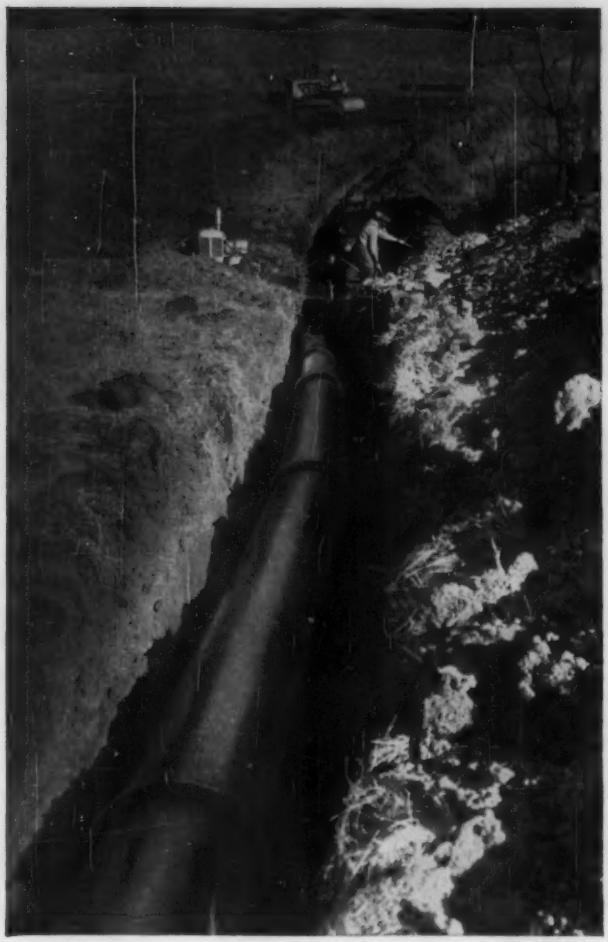
—Illinois



HANDS DOWN!

"We are located in a limestone area. We find cast iron pipe will absorb more rock damage than any other pipe. We also use cement lined pipe to overcome our corrosion condition which exists in our water."

—Pennsylvania



"It is very easy and fast to lay, and you can swing the joint enough in places where you can save time and money."

—New Jersey

Three reasons why cast iron pipe is America's greatest water carrier:

1. More miles of underground cast iron water mains are now in use than of all other kinds of pipe combined.
2. More miles of cast iron water mains are now being purchased and laid than of any other kind of pipe.
3. Impartial surveys prove that today's water utility officials and consulting engineers prefer cast iron pipe for underground water distribution by an overwhelming majority.

. . . good reasons for you to choose

CAST IRON PIPE

Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 3440 Prudential Plaza, Chicago 1, Ill.

the V-notch is the difference in chlorine control

Safe chlorine control is the job of a chlorinator.
This control, the V-notch, does the job completely.
Yet it appears to be simply a grooved plug in a ring.
It is, of course, more than that... much more.
The groove in the plug is precision milled and shaped so that when you turn the control knob on your chlorinator and the plug slides through the ring, the size of the opening between the groove and the ring changes an exact amount. You meter chlorine exactly and simply because every position of the plug in the ring makes a repeatable orifice size—a repeatable chlorine flow rate.
Only in a W&T V-notch Chlorinator is control so simple, so true, so precisely right.
And, of course, the right plastics make the whole chlorinator chlorine-proof.

A booklet, "The V-notch Story" will tell you about all the W&T V-notch Chlorinator features. For your copy write Dept. S-127.00

WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

E. R. P. CATHODIC PROTECTION
...INDIVIDUALLY DESIGNED FOR EACH APPLICATION

to prevent corrosion of buried or submerged metal structures

Write for Bulletin E-37

ELECTRO RUST-PROOFING CORPORATION
30 MAIN STREET, BELLEVILLE 9, N. J.

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Plastic Pipe Resists Heat, Has High Tensile Strength

315 A new rigid plastic pipe, applicable for sprinkling systems, potable water lines and gas lines, has been introduced by MARBON CHEMICAL DIV. of BORG-WARNER, WASHINGTON, W. VA. Made of Cycolac C ABS Type II, a tough thermoplastic, it offers increased chemical resistance over a greater range of temperatures, higher tensile strength and full protection against corrosion.

New 3-Cubic Yard Power Street Sweeper

316 Wayne's 3-cubic yard Model 460 street sweeper is designed to provide maximum maneuverability, visibility, and safety through 3-wheel design. It supersedes the 450 sweeper, and offers all the advanced features of the firm's 4-cubic yard Model 550 sweeper. For details, write WAYNE MFG. CO., 1277 E. LEXINGTON AVE., POMONA, CALIF.

Baling Sweeper For Golf Courses

317 The aptly named Fairway Sweeper is capable of sweeping and baling up to 500 bushels of wet or dry leaves, grass clippings, twigs and weeds, per hour. It is easily towed by truck, jeep or tractor and collects its sweepings into compact canvas covered bales for easy handling and disposal. For details, write PARKER SWEEPER CO., SPRINGFIELD, OHIO.

Water Equipment and Services

318 *Bulletin* No. 27 discusses the equipment and services available to municipalities from LAYNE & BOWLER, INC., MEMPHIS 8, TENN., specialist in ground water development and water treatment and manufacturer of vertical turbine pumps.

Insert New Valves Easily

319 Mueller cut-in sleeves and valves make it possible for new control valves to be added and old valves to be replaced quickly with only a minimum of excavation, and without breaking pipe joints. Available in sizes from 4 inches through 12 inches, they are described in literature available from MUELLER CO., DECATUR, ILL.

Forms Watertight Joints in Reinforced Concrete Structures

320 *Bulletin* 128 introduces Nervastral Waterstop for use between adjacent sections of concrete. It illustrates five types and has a table giving specific data on the physical and chemical properties of the product. Applications are also illustrated. For your copy, write RUBBER AND PLASTICS COMPOUND CO., INC., 10 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

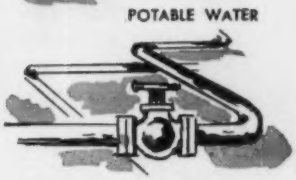
Puts Pep in Sewage Purification

321 The activated sludge process, recognized as the method of purifying sewage that does the most effective job, now can get a big assist from the Penberthy hydraulic jet ejectors. This simple device will introduce air so that sewage will absorb 50 pounds of oxygen per day per ejector at a power requirement of only 0.35 brake hp per ejector. The manufacturer has data showing that it operates better than any other aeration device. Get the full story plus a diagram of a typical aeration ejector installation from PENBERTHY MFG. CO., 1242 HOLDEN AVE., DETROIT 2, MICH.

(See page 53 for more Bulletins)

REMARKABLE *new* RIGID PLASTIC PIPE!

★ **Higher Tensile Strength**
★ **Higher Heat Resistance**



MADE OF

CYCOLAC® C ABS

ABS TYPE II
Thermoplastic Resin
(NSF APPROVED)

New Thermoplastic Resin from BORG-WARNER

Now there are two types of ABS rigid plastic pipe made of Cycolac, the *tough* thermoplastic. The original Borg-Warner Cycolac L ABS Type I resin has already proved its worth in scores of applications from coast to coast.

The new Cycolac C ABS Type II resin offers increased tensile strength, greater heat resistance and other important advantages over metal. Among these are light weight, ease of installation and protection against corrosion.

To users of pipe, Cyclolac C offers superior service over a greater range of temperatures with increased chemical resistance.

WRITE FOR NAME OF YOUR NEAREST CYCOLAC EXTRUDER

PACESETTER IN
Marbon CHEMICAL
SYNTHETIC RESINS

DIVISION of BORG-WARNER
WASHINGTON, W. VA. • GARY, INDIANA
also represented by:
WEST COAST: Harwick Standard Chemical Co., Los Angeles, Cal.
CANADA: Dillons Chemical Co. Ltd., Montreal & Toronto
EXPORT: British Anchor Chemical Corp., New York

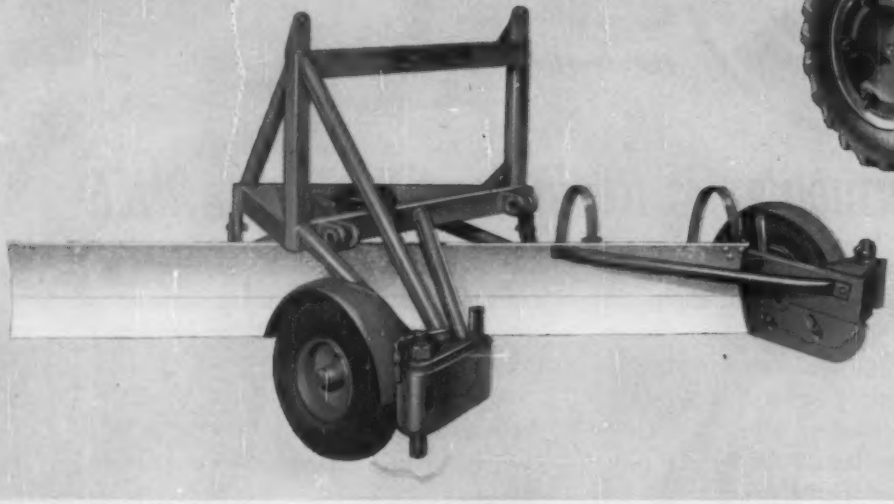
BW ® Marbon

Four-way time- and money-saver

ONE Load trucks, clean road rubble, stockpile with your D, too. The handy 5/8-yd bucket is interchangeable with the maintainer.

TWO Shoulder maintainer rebuilds shoulders, establishes good drainage—then maintains them with one safe, off-the-road pass.

As a windrow eliminator, this timesaving attachment feathers windrows while patrolling. Leaves a clean trail on only one pass.



ROLL-AWAY is an Allis-Chalmers trademark.

Springtime is D-time all over America . . . the time when a Model D motor grader can help you most. This year, when spring uncovers winter-worn roads, be sure you're ready with a four-way, special purpose Model D.

See a Model D before you write bid specs

move ahead with ALLIS-CHALMERS.....

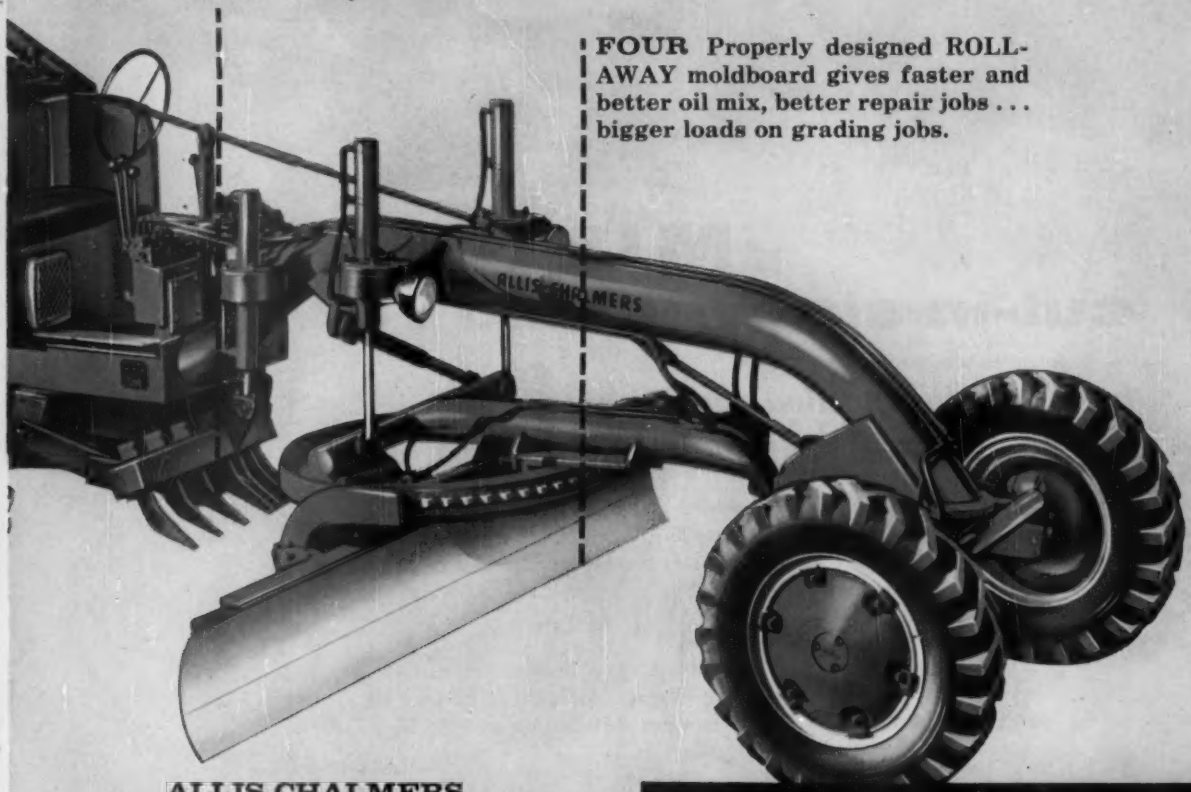
YOU CAN DO MORE SPRING ROAD MAINTENANCE WORK ON TIME AND AT LOWER COST WITH AN ALLIS-CHALMERS MODEL D THAN WITH ANY OTHER GRADER

Worried about winter's leftover frost boils, potholes, washouts? Here's the solution—an Allis-Chalmers Model D. More than just a grader, the D mounts enough attachments to make it a "one-man road gang."

And best yet—the D costs so little you can own two or three for the cost of one "big" grader. Spotted strategically your D's then cover more ground—help you get the jump on spring work and stay ahead all year.

THREE Unique midship mounting gives extra down-force, helps retain front-end steer-ability.

FOUR Properly designed ROLL-AWAY moldboard gives faster and better oil mix, better repair jobs . . . bigger loads on grading jobs.



ALLIS-CHALMERS MODEL D MOTOR GRADER

for new road machinery. There isn't another grader that can do as many jobs for you at such low cost. Ask your Allis-Chalmers dealer to prove it with a demonstration—on your own roads. *Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.*

4 Model D graders available
58-hp gasoline engine—8,800 to 11,450 lb
diesel engine also available

.power for a growing world

■ Cut-In Sleeve and Valve installed in main

MUELLER
cut-in sleeves and valves

Install needed control valves without breaking pipe joints!

■ New control valves can be added and old valves replaced quickly with Mueller Cut-In Sleeves and Valves. Only a minimum of excavation is necessary. You don't have to uncover several lengths of pipe so that pipe joints may be broken. You can install the valve right where you want it — anywhere on the pipe length.

Special mechanical joints on both sleeve and valve permit one Cut-In Sleeve and Valve of a nominal size to be used on any cast iron pipe regularly found in water distribution systems by using the proper end gaskets.

Mueller Cut-In Valves have the same quality features as the Mueller AWWA Gate Valve — including the 4-point-contact wedging mechanism. "O" ring stem seals or conventional packing are optional. Indicator post type cut-in valves are also available. Sizes 4", 6", 8", 10" and 12".

See your Mueller Representative or write direct for full details.

MUELLER CO.

DECATUR, ILL.

TAKE THE HAZARD OUT OF Warning Lighting

with modern **DIETZ** equipment

• EFFICIENT
• RELIABLE
• EASY-TO-MAINTAIN

DIETZ CONTRACTOR LANTERN

Vividly illuminates exact location, extent and boundaries of hazardous areas. Burns up to 75 hours. (Kerosene fuel)

DIETZ VISI-FLASH

Warns *"Danger Ahead"* from either direction. Alerts drivers and pedestrians by brilliant flash periods scientifically timed for maximum visibility. (Dry cells)

DIETZ FLARE TORCH

Works best in conjunction with Dietz Lanterns to show and outline existing hazards. Up to 50 hours of illumination in all weather. (Kerosene fuel)

SEND FOR YOUR FREE COPY

of the latest authoritative manual of "Hazard Warning Lighting." Mail the coupon today.

Go DIETZ and you go Safely

R. E. DIETZ CO.
114 Leavenworth Ave., Syracuse, N. Y.

Please send me a copy of the "Hazard Warning Lighting" manual.

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COMPANY_____

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CITY_____ ZONE____ STATE_____

When the log jam breaks...

Thousands of tons of timber will be unleashed on the waters of the river. Similarly, our explosive surge of population is bearing down on already overburdened water works facilities in many communities.

New pipelines are essential; but only pipe of sustained high carrying capacity can meet greater demands with constant, predictable volume. That's why efficiency and economy dictate the use of LOCK JOINT CONCRETE PRESSURE PIPE for water supply and distribution lines. Its first low cost, ease of installation, long life, negligible maintenance and permanent high carrying capacity represent immediate and long term economies.

To bolster your water system against the shock of our yearly 3,000,000 increase in population, specify LOCK JOINT CONCRETE PRESSURE PIPE for complete dependability and over-all economy.

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

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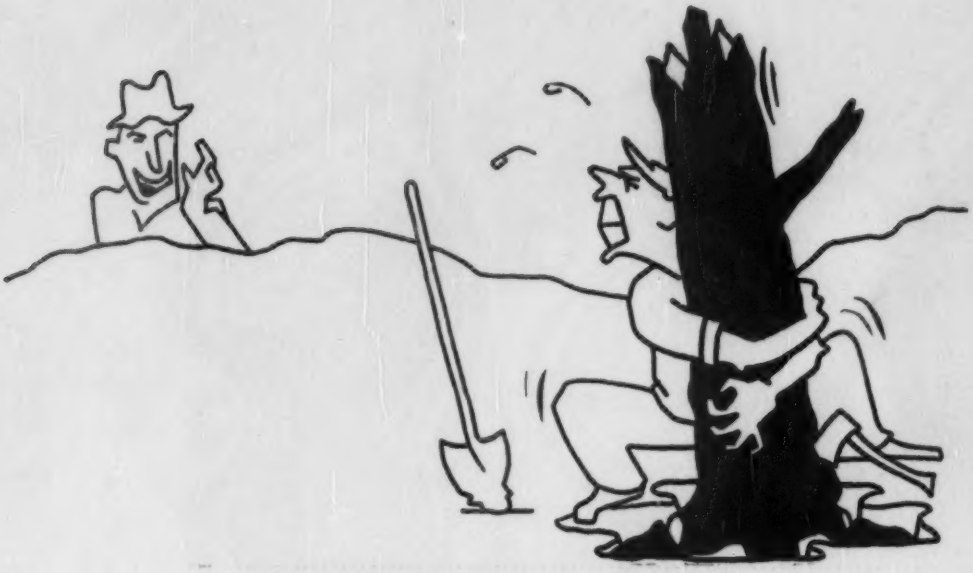
BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.



If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
please send literature on items numbered as follows, starting on page 28

230	242	254	266	278	290	302	314	326	338	350
231	243	255	267	279	291	303	315	327	339	351
232	244	256	268	280	292	304	316	328	340	352
233	245	257	269	281	293	305	317	329	341	353
234	246	258	270	282	294	306	318	330	342	354
235	247	259	271	283	295	307	319	331	343	355
236	248	260	272	284	296	308	320	332	344	356
237	249	261	273	285	297	309	321	333	345	357
238	250	262	274	286	298	310	322	334	346	358
239	251	263	275	287	299	311	323	335	347	359
240	252	264	276	288	300	312	324	336	348	360
241	253	265	277	289	301	313	325	337	349	361

I would also like to receive manufacturers' booklets on.....

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Name: (Please Print).....

Title:.....

Address:.....

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A Listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:

Please send me further information on Products described in "Purchasing News" section beginning On page 179 as circled below:

817	822	827	832	837	842	847	852
818	823	828	833	838	843	848	853
819	824	829	834	839	844	849	854
820	825	830	835	840	845	850	855
821	826	831	836	841	846	851	856

I would also like to receive manufacturer's booklets on.....

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A listing of your Business Connection is Important

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THE AMERICAN CITY MAGAZINE

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NEW YORK 16, N. Y.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.

Versatile Reversible!

The NEW **FRINK**

TRIP-BLADE SNO-PLOW
for all-purpose snow removal

Here's the plow designed to cope with almost every snow removal problem. The new Frink Reversible Sno-Plow with Trip Blade plows left or right for in-city maneuverability . . . bulldozes straight ahead for clearing intersections, bridges, lanes, parking lots, airport ramps and wide sidewalks. Power hydraulic mechanism, controlled by cab lever, reverses plow while raised or on ground, even while plowing. (Models with manual reverse by single lock pin also available.) Curved, panelled moldboard with deflector makes the Reversible lighter and safer to use at all speeds.

PRE-LOADED
TRIP SPRING MECHANISM

Dual-purpose springs with special linkage to moldboard create "free-flowing" action that follows road contour, produces smooth tripping over obstructions and quick, cushioned rebound without chatter. Cutting edge and plow shoes are replaceable; scuff shoes bolted outside moldboard protect against curbs, side obstructions.

Other dependable Frink Sno-Plows (V-Type, One-Way and Roll-Over) are interchangeable on trucks with attachments for the Reversible.

For Snow Plow Know-How It Pays to Think of FRINK SNO-PLOWS

Clayton, 1000 Islands, N. Y.
Frink Sno-Plows of Canada, Ltd., Toronto, Ontario

Plastic Coating Stops Costly Condensation Drip and Rust

THE COSTLY PROBLEM caused by dripping from this sweating pipe was permanently solved with one easy and inexpensive application of NoDrip Plastic Coating. Sweating pipes, ceilings, air ducts and other metal equipment are also completely protected against rust and corrosion by low cost NoDrip.

NoDrip Plastic Coating acts immediately to insulate and protect. One application adds many years of service life to metal equipment. NoDrip is also resistant to acid, alkali and brine...protects concrete, brick, plaster, tile wood or composition surfaces.

Easy application requires no special equipment or skill. Anyone can apply NoDrip with brush, trowel or spray. Stop your condensation problem now! Get full details without delay.

JW Mortell COMPANY

FREE **32-PAGE NoDrip DATA HANDBOOK**
Complete with photographs, charts and technical information to solve your condensation problem. Write today.

Available at leading plumbing and mill supply houses

J. W. MORTELL CO., 565 Burch St., Kankakee, Ill.
Please send my FREE copy of the NoDrip Data Handbook.

Name_____

Company_____ Title_____

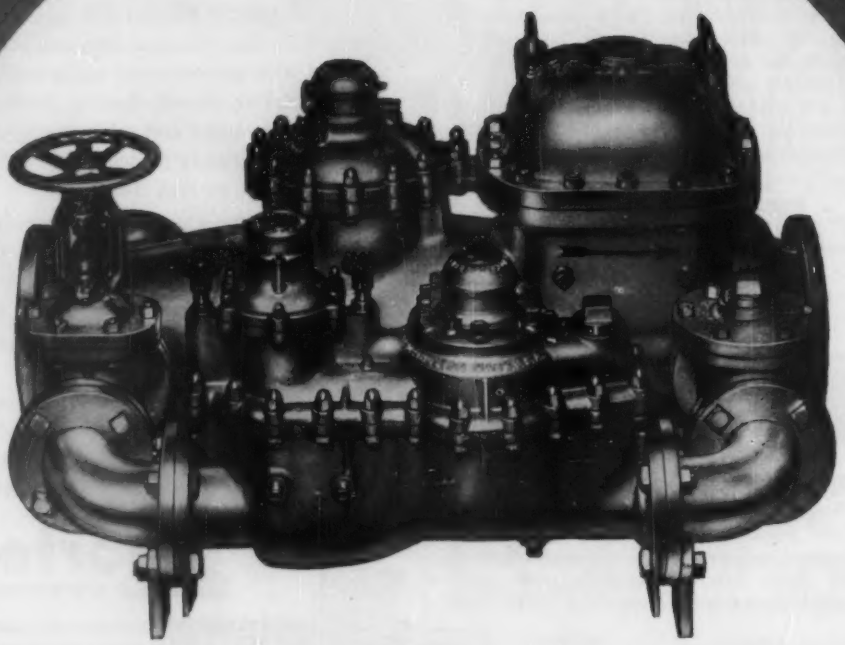
City_____ Zone_____ State_____

HERSEY

DETECTOR (Fire Service) METERS

Insure against loss of collectable revenue by accurately registering all rates of flow.

In emergency will deliver the full capacity of the supply pipe.



HERSEY 1859 1959 100 YEARS OF PROGRESS

HERSEY MANUFACTURING COMPANY

(Established 1859)

DEDHAM, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO
SAN FRANCISCO — LOS ANGELES

"YOU CAN'T BUY A BETTER WATER METER THAN HERSEY."

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50.

Meter Boxes and Settings

322 There's a Ford meter box and setting to meet the needs of every water service situation—yokebox for shallow services; copperhorn for vertical lines; double lid setting for maximum frost protection; copper setter for easier meter reading and changing. A new catalog describes these and other services; for a copy, write THE FORD METER BOX CO., INC., WABASH, IND.

General-Purpose Floodlight

323 G-E's new 1500-watt, general-purpose floodlight for recreational applications is discussed in *Bulletin* GEC-1498. Features, dimensions, photometric data and illustrated mounting suggestions are included in the bulletin. For your copy, write GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

Equipment and Methods for Sewage Treatment

324 *Bulletins* 6041, 6043, 7313, and 7315, respectively, describe Dorr-Oliver equipment to fit every treatment plant need, seven new developments for municipal and industrial sanitation, small-scale biofiltration with Dorr Duo treatments units, and the D-O Completreator. For copies, write DORR-OLIVER INC., BARRY PLACE, STAMFORD, CONN.

Brilliant, Wear-Resistant Enamel Traffic Marking Paint

325 A tough new traffic paint, rigidly tested for road wear and driver visibility, provides brilliant, long-lasting traffic markings on a variety of road surfaces. Called Jet-Dri, it may be applied by conventional highway painting equipment or by hand with brush or roller. For details, write JET-DRI DIV., CONSOLIDATED CHEMICAL AND PAINT MFG. CO., 444 LAFAYETTE ST., NEW YORK, N. Y.

Improved Pneumatic Tire Roller

326 *Brochure* No. RE-390 discusses the Bros SP-54B, a medium-weight pneumatic tire rollers, in terms of improved design features and performance. It points out that the unit's ballast range can be varied to produce from 3 to 10 tons compaction load and that a lower center of gravity increases the machine's stability for shoulder work and steep grades. For your copy, write BROS INC., ROAD MACHINERY DIV., 1057 TENTH AVE. S.E., MINNEAPOLIS 14, MINN.

Treelike Lighting Standards

327 Seven blocks of Chicago's State Street now boast 70 treelike lighting poles with 280 giant fluorescent luminaires that provide a maintained illumination level of 14 footcandles. These units are radical in design; they contribute to facade lighting as well as street lighting. For details on these and other unusual lighting designs, write THE UNION METAL MFG. CO., CANTON 5, OHIO.

Speeds Trenching Operations, Slashes Costs

328 Trenching operations move at the rate of 6 fpm and cost about 2c per foot when a Model 3 Ditch Witch is on the job. Self-propelled, one-man operated, this 9.2-hp unit cuts trench for road crossings, water service lines, sprinkler systems for golf course and parks. For literature, write CHARLES MACHINE WORKS, INC., 603 BIRCH ST., PERRY, OKLAHOMA.

Gate Valves and Fire Hydrants

329 Specifications, design features, operating mechanisms and general characteristics of Kennedy water gate valves, Safetop fire hydrants and "Standard" fire hydrants are given, respectively, in *Bulletins* 561, 105, 109, available from THE KENNEDY VALVE MFG. CO., ELMIRA, N. Y.

Clay Products Catalog

330 A 16-page souvenier booklet details facilities, growth and expansion of LOGAN CLAY PRODUCTS CO., LOGAN, OHIO, pioneer in the clay industry. Logan's automatic clay-handling equipment, horizontal pipe-making machines, automatic take-off and finishing equipment, tunnel drier and preheater and 363-foot gas-fired tunnel kiln are all described.

Porcelain Enameled Traffic Signs

331 Streets that are clearly marked with traffic signs that are visible day or night are signs of good government. Ferro signs are made of permanent porcelain enameling, fused on finest steel, and are fully embossed. For details, write FERRO ENAMELING CO., 1100 FIFTY-SEVENTH AVE., OAKLAND 21, CALIF.

Small City Water Storage

332 Horton Tripod tanks provide economical gravity pressure water supply for small municipalities. They are built in capacities from 15,000 to 750,000 gallons; standard heights to bottom range from 25 to 75 feet. For complete information, write CHICAGO BRIDGE & IRON CO., 2127 McCORMICK BLDG., CHICAGO 4, ILL.

(See page 54 for more Bulletins)

M&M BEAVER

AMERICA'S NO. 1 BRUSH CHIPPER

Cuts Brush Haulaway Costs

No longer is it necessary to wonder what to do with useless brush and branches and the high cost involved in hauling them away. The new M & M Beaver, America's No. 1 Brush Chipper, converts this useless brush, branches, and limbs up to 6" in diameter into wood chips that can be used for mulch, flower beds, fuels, and many other purposes. If the quantities are large enough, paper mills and chemical factories are interested in buying these chips.

For over 100 years MITTS & MERRILL has been manufacturing machinery, wood hogs and brush chippers for the sawmill and lumber industries. The over 100 years of know-how and engineering information thus accumulated is built into the new M & M Beaver which we call America's No. 1 Brush Chipper.

The new M & M Brush Chipper is mounted independently on a well-built steel frame welded trailer so that it can be hauled through rugged terrain such as highways, ditches, fields, and forest clearings. The units are also available independently and can be mounted on trucks or tractors (truck installation shown here).

Cutting is done with 12 small staggered knives equally spaced every 45 degrees over a rotary cylinder. Thus each knife has a smaller impact on machinery, clutches, etc. than machines which have four large knives—90 degree spaced—completely across the cylinder. All moving parts are well guarded for safety yet easy to get to when adjustments are necessary.

If you are interested in the finest machine, the machine designed right and built right and the machine that saves you money, then you will prefer the M & M Beaver, America's No. 1 Brush Chipper. Write today for complete information.

M&M

100

MITTS & MERRILL • (1003 So. Water Street) • SAGINAW, MICHIGAN

FREE catalogs

Write directly to the address given or use the Post Card on the insert following Pg. 50.

Increases Settling Efficiency of Water, Sewage Treatment

333 An improved design for removing solids from water, sewage and industrial wastes is discussed in *Folder* 2648. In it, the theory of Uniflow settling tanks is explained, specifications given, and design procedure graphically presented. For your copy, write LINK-BELT COMPANY, 539 FIFTH AVE., NEW YORK 35, N. Y.

Fast, Accurate Measuring Wheels

334 One-man operated and precision-calibrated for accuracy, Rolatape measuring wheels prove themselves timesavers on street repair, construction and maintenance work. They measure at walking speed, record total automatically, eliminate stooping and stretching. For details, write ROLATAPE, INC., 1741 14th ST., SANTA MONICA, CALIF.

Accurate Water Meters

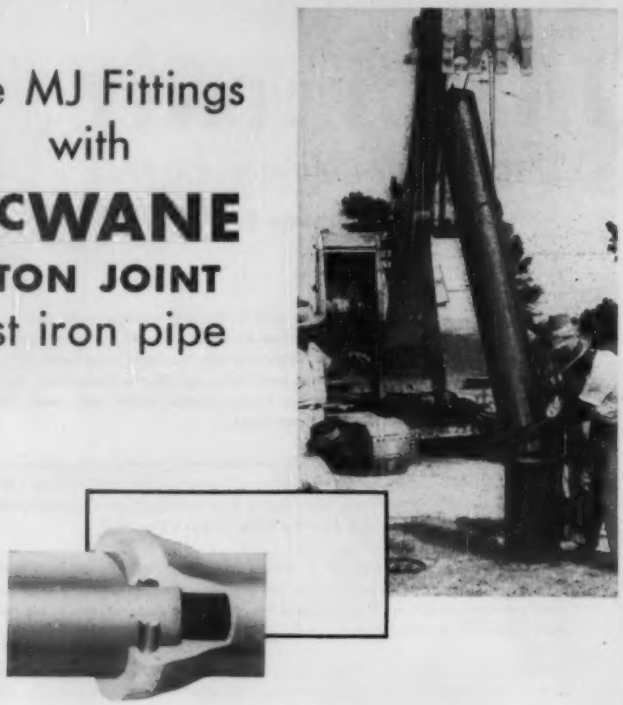
335 American meters are precision manufactured and accurate in performance. They assure a full return for water delivered. Their thick measuring disc makes an efficient seal against slippage. For full information, write BUFFALO METER CO., INC., 2902 MAIN ST., BUFFALO 14, N. Y.

Use MJ Fittings with

McWANE

TYTON JOINT

cast iron pipe



In construction of a pipe line with McWane Tyton* Joint cast iron pipe, most customers use all-bell Mechanical Joint fittings. If preferred, plain all-bell fittings may be used with lead joints. McWane Tyton Joint plugs are available for closing a dead-end, either for testing or future extension. Photo above shows an MJ Tee being set into a Tyton Joint pipe line.

McWane Tyton Joint Super DeLavaud cast iron pipe is furnished in accordance with ASA, AWWA, or Federal specifications. The weight of Tyton Joint pipe is the same as the weight of bell and plain-end pipe for the same specification.

Tyton Joint pipe for water is furnished tar coated, cement-lined or Enamelined. Tyton compound rubber gaskets are furnished with each order, and Tyton fork tool or jack are either loaned or sold with each pipe order, if desired. IMMEDIATE SHIPMENT all sizes. Write for illustrated Tyton pamphlet.

(*Patented and ®).

(2" and 2¼" Through 12" For Water Mains)

McWANE CAST IRON PIPE COMPANY

GENERAL OFFICES & FOUNDRIES, BIRMINGHAM, ALA.

Sales Offices: Dallas Chicago Kansas City New York Birmingham

Advises on Street Lighting and Signs

336 PFAFF & KENDALL and TRAFFIC AND STREET SIGN CO. have formed a committee to aid consulting engineers and state highway departments in the many phases of highway lighting and signing. Motion pictures, photos, plans of recent signing and lighting installations, as well as individual help of members, will be available. For further information, write "COMMITTEE," c/o of either company, 84 FOUNDRY ST., NEWARK 5, N. J.

Self-Aligning Paving Forms

337 The Wedge-Lok method of form joining, a feature of Clark curb, gutter, sidewalk and heavy-duty paving forms, reduces setting time and makes certain that when the form is placed on the subgrade there will be no movement of the form during staking and wedging operations. For details, write CLARK INDUSTRIES, CONSTRUCTION EQUIPMENT DIV., 375 E. FIFTH AVE., COLUMBUS 1, OHIO.

Hard-Working Backhoe

338 Sherman power diggers work fast, dig deep. They earn their keep trenching — for water and sewer lines, etc. Their capacity is big, their energy nearly inexhaustable. They excavate economically. Literature describing them is available from SHERMAN PRODUCTS, INC., ROYAL OAK, MICH.

Fire Hydrants

339 Do you know what an "O" ring seal is in a fire hydrant? It is one of those features of the Darling B-50-B hydrants that do away with the hard-to-maintain stuffing box and insures permanent lubrication of the operating mechanism. Other useful features are the oversize barrel, integrated main valve assembly and positive barrel drainage. You get the full story in *Bulletin* 5710; write DARLING VALVE & MFG. CO., WILLIAMSPORT 10, PA.

New Traffic Signal Pole

340 Kerrigan's "Classic" raffic signal standard is designed to complement the modern, functional styling of today's streets and highways. Tested for hurricane winds and available in either steel or aluminum, it can be rotated to any point within a 360° circle. For further information, write KERRIGAN IRON WORKS, INC., WELDFORGED LIGHTING STANDARD DIV., DEPT. A-1, NASHVILLE, TENN.

Electric Addresser

341 Duplicard Model E-22, a fast, automatic electric addresser with 22-inch wide envelope hopper, handles most mailing pieces in common use—envelopes, leaflets, cards, magazines—at speeds of 5,400 units per hour. It is one in an 8-model line of addressing machines that use 3" x 5" file cards as addressing masters. For literature, write DUPLICARD ADDRESSING MACHINES CO., 1010 E. CHESTNUT ST., SANTA ANA, CALIF.

Pipe Tools

342 Toledo pipe tools satisfactorily do the job for which they were designed. Vise stands are easy to set up, won't buckle, and hold pipe ⅛ to 5 inches in size. Nos. 66 and 44 cam-type die heads facilitate threading, keep pipe centered. Four pipe cutters hook on pipe easily, track perfectly, cut cleanly. For details, write THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO 4, OHIO.

Semi-Actuated Traffic Signal Control

343 If you are interested in semi-actuated signal control in its most advanced form, *Bulletin* C-123 will tell you about Traff-O-Matic Control, Model 507. It combines maximum flexibility with design features that emphasize reliability, accuracy of operation, simplicity and accessibility of components. Write AUTOMATIC SIGNAL DIV., EASTERN INDUSTRIES, INC., NORWALK, CONN.

(See page 60 for more Bulletins)

THE POINT OF NO RETURN...

HOW MANY WILL PASS IT ON YOUR HIGHWAYS TONIGHT?

A barely defined center line . . . the absence of a no passing stripe . . . and a motorist commits a fatal error of judgment. Unaware of the sharply dipping roadway and the oncoming car it conceals, he makes his move. In the next instant, the approaching auto is revealed . . . too late . . . he has passed the point of no return.

Properly laid pavement markings reflectorized with Cataphote Waterproof Reflective Traffic Beads can materially reduce night-time traffic fatalities . . . in fair weather and foul. Many traffic engineers consider Cataphote Waterproof Beads one of their staunchest allies in a never-ending struggle to make streets and highways safer. And . . . a nationwide network of Cataphote Supply Centers assures them of prompt delivery . . . anytime . . . anywhere.

As long as there are roads to drive upon, drivers will err in judgment. Realizing this, the wise traffic engineer uses every means at his command to make existing highways safer. The man who fails to do so, commits the gravest error of all.

Cataphote
CORPORATION

TOLEDO 10, OHIO / JACKSON, MISSISSIPPI

Manufacturers of CATAPHOTE REFLECTIVE BEADS • CATAFLEX REFLECTIVE COATING • CATALINE REFLECTIVE STRIPING
CATATHERM REFLECTIVE PLASTIC STRIPING • TRAFFIC SIGNS • STREET NAME SIGNS

COMPLETE ICE AND SNOW
WAUSAU-
FIGHTING EQUIPMENT

SNOW REMOVAL
ICE CONTROL

WAUSAU specialists in snow plows . . . 55 models and 9 types to select from . . . equipped with the finest of a full range of hydraulic controls to meet your individual requirements . . . will take more punishment, cost less to operate, and do the job better.

MATERIAL SPREADERS

Quick action spreading is a feature of this low cost self-contained unit that may be attached or disconnected in a minute. It has positive control of thickness, width, and direction of spread . . . operates only when body is raised—stops when body is lowered . . . no hazard to passing vehicles . . . sturdily built throughout for long service . . . width of spread 8 to 20 feet—hopper capacity 2 cubic feet.

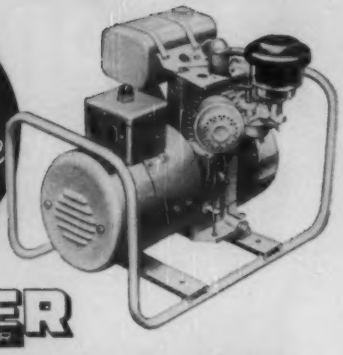
TRUCK GRADER ICE BLADE

Maintains, cuts and grades all types of gravel and dirt roads, eliminates ruts, holes, and washboards. For winter operation it planes, breaks, and removes ice and hard-packed snow hazards . . . truly a versatile year 'round maintenance unit . . . full power hydraulic cab control.

Write today for the name of your nearest WAUSAU distributor who will assist you in getting year 'round maintenance equipment to fit your needs.

WAUSAU IRON WORKS WAUSAU, WISCONSIN
Pioneer Snow Plow Builders
Truck Patrol Ice Planer and Material Spreaders

Portable POWER... *Always Dependable*



PIONEER GEN-E-MOTOR

GENERATORS

PORTABLE • BELT DRIVEN • DIRECT MOUNTED

Wherever you need *power on the spot* you can rely on rugged Pioneer Generators. They are service-proved for over 32 years on thousands of jobs. Select a Pioneer for top performance from many models ranging from 500 to 12,000 watts.

WRITE FOR CATALOG—complete specifications.
Distributor Inquiries Invited

Pioneers in Generators for Over 32 Years

PIONEER GEN-E-MOTOR CORPORATION
5849 West Dickens Ave., Chicago 39, Illinois

WORTHINGTON-GAMON

LIQUID METERS
All Sizes All Types

GAMON METER DIVISION
Worthington Corp.
296 South Street Newark 5, New Jersey

BEAVER, IOWA
25,000 gallons

HANOVER, VIRGINIA
60,000 gallons

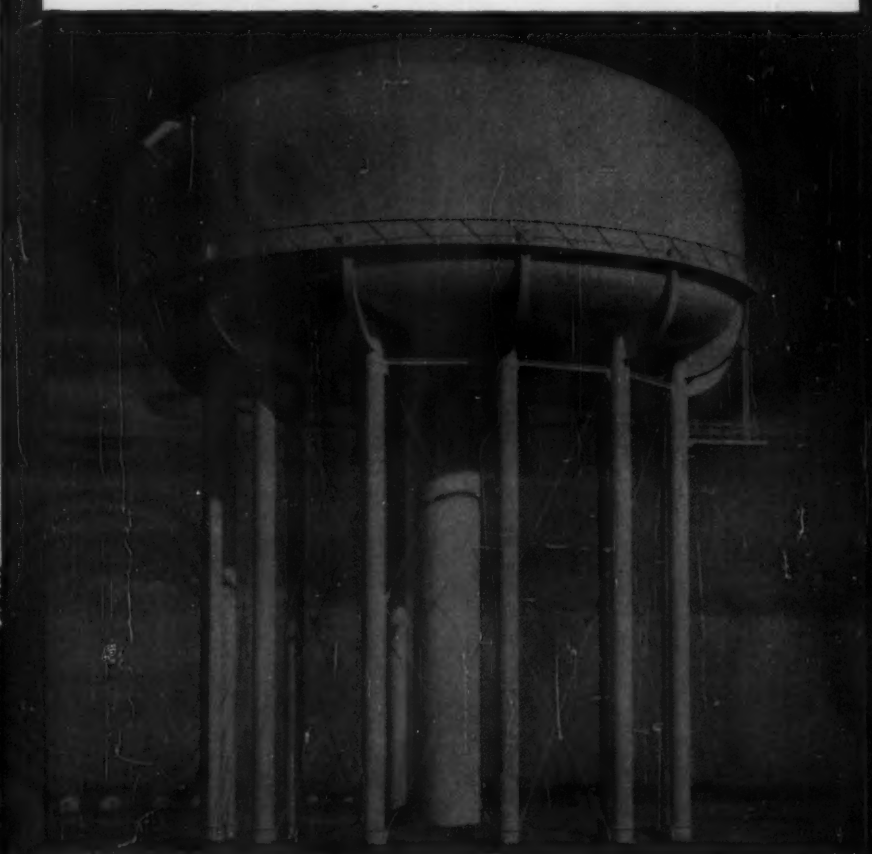
PDM
ELEVATED STEEL TANKS

BETTER ELEVATED WATER STORAGE

comes in all sizes to serve every need

Pittsburgh-Des Moines' resources as pioneer builders of steel elevated tanks include every type of structure, in every capacity to meet your individual water storage needs—fabricated and erected with expert craftsmanship and a responsible guarantee of satisfaction.
Write for our latest "Modern Water Storage" brochure: 20 pages of interest and information!

FOREST, MISSISSIPPI. 500,000 gallons



PUEBLO, COLORADO. 1,500,000 gallons

Pittsburgh-Des Moines Steel Company

Plants at PITTSBURGH, BALTIMORE, DES MOINES, SANTA CLARA, FRESNO, and STOCKTON, CALIF.

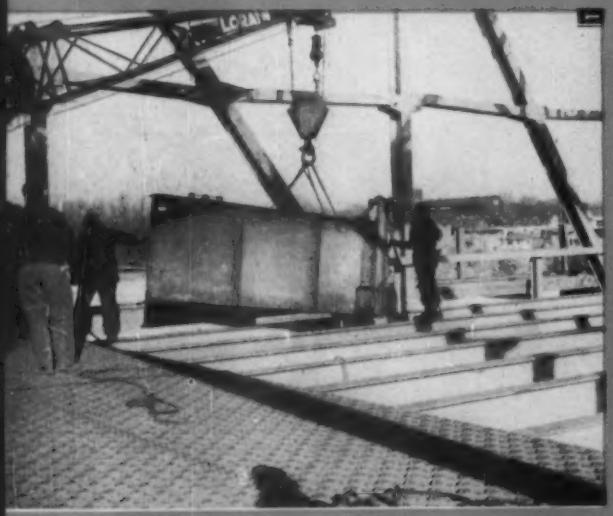
Sales Offices at:

PITTSBURGH (25).....3412 Neville Island
BALTIMORE (26).....Curtis Bay Station
NEWARK (2).....1715 Military Park Bldg.
CHICAGO (3) 616 First National Bank Bldg.
EL MONTE, CAL.....P. O. Box 2012
DENVER (2).....323 Railway Exchange Bldg.
ATLANTA (5)..361 E. Paces Ferry Rd., N.E.
DES MOINES (8).....913 Tuttle Street
DALLAS (1).....1217 Praetorian Bldg.
SEATTLE (1).....Suite 320, 500 Wall St.
SANTA CLARA, CAL.....619 Alviso Road

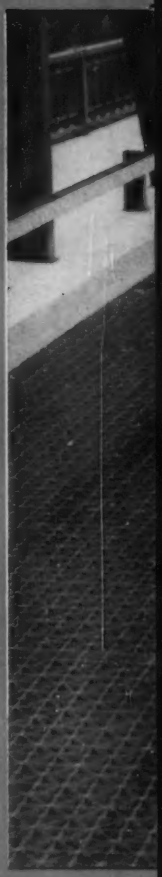
MINNEAPOLIS' Now Floored Unique

Minneapolis' new Lowry Avenue Bridge. Designed by Eric Jorgenson, City of Minneapolis Bridge Engineer, now retired. All photos by Alan Ostlund, Minneapolis.

Greulich 4-Way Grid has been partially laid here, but not welded, and is providing excellent platform for workmen to use.



Another scene showing grid in use as a working platform. Here floor beams from the old bridge are being easily removed.



The Lowry Avenue Bridge, reconstructed by the City of Minneapolis and opened to traffic during the early part of July, 1958, presents a rather unique construction technique.

The old floor system was supported on falsework as a working platform for erecting the new bridge. The old trusses were removed. Piers were widened and raised and new steel trusses erected.

After the new trusses were erected, Greulich 4-Way Grid 5-inch open steel flooring was placed, but not welded. As the flooring progressed the floor beams from the old bridge were removed by a truck crane resting on the grid floor. This presented a good test of Greulich 4-Way Grid's rugged, all welded construction and it came through with flying colors.

Today, four lanes of traffic flow across the Mississippi River on the new Lowry Avenue Bridge, relieving one more traffic problem for a progressive city. Since open grid does not retain snow in winter this bridge will give a year-round crossing.

QUICK FACTS ABOUT GREULICH 4-WAY GRID

Integrally connected triangles of the grid provide a flat, single-plane, serrated surface over entire roadway to insure maximum lateral or horizontal rigidity. 7½" spacing of main bearing members permits installation with 20% fewer field welds with no loss of strength. Panels 7 ft. 3" wide hold handling costs down but still permit hauling on flat bed trucks. Grid can be filled half depth with concrete where a closed surface is desired. For additional facts, write Harvey F. Neel, Mgr., Division A-1, Kerrigan Iron Works, Inc., Nashville, Tenn.

Bridge Flooring Division (Harvey F. Neel, Manager), Nashville, Tennessee

LOWRY AVENUE BRIDGE
with GREULICH 4-WAY GRID
Construction Technique Used!

- Stronger
- Quieter
- 20% Fewer Field Welds

U. S. Patent No. 2,740,335
Canadian Patent No. 537,138

THE FORGES OF KERRIGAN

KERRIGAN IRON WORKS, Inc.

General Sales Office, 280 Madison Avenue, New York, New York

FREE catalogs

Write directly to the address given or use the Post Card on the insert following Pg. 50.

Lighting Equipment

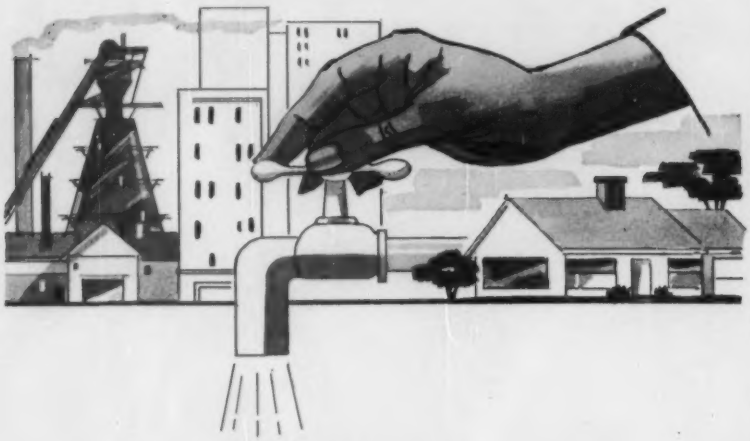
344 A comprehensive presentation of Revere lighting equipment and its applications are given in a new 8-section catalog. Floodlights, airport lighting, street luminaires and poles, sports lighting are some of the categories covered. For your copy, write REVERE ELECTRIC MFG. CO., 7420 LEHIGH AVE., CHICAGO 48, ILL.

Heavy-Duty Pipe Cutter

345 This pipe cutter is designed for cutting large pipe, in or out of the ditch. It has drop-forged frame and links and cutter wheels that are longwearing. Available in two sizes, it is fully described in *Circular* No. 41 AC. Write ELLIS & FORD MFG. CO., P. O. BOX 308, BIRMINGHAM, MICH.

Benefits of "Matched" Digging-Loading

346 Thirty-five operating advantages of the 42-hp Case Utility Model 310B wheel-mounted backhoe-loader, plus pertinent mechanical details of the Case-built backhoe, loader, and heavy-duty tractor are given in *Bulletin CUS-110*, just released by J. I. CASE CO., RACINE, WIS. Action views of the rig working under various conditions are also included.

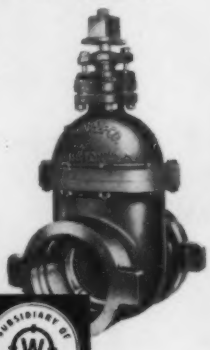


Just a TWIST of the WRIST

The three basic elements vital to your life are air, food and water. Most important of the three is water. And as civilization develops, water becomes increasingly important.

In America today, 140 gallons (60 pails) of water is required each day for every man, woman and child. It is a complex job to supply the water you need for home, industries, factories, stores, offices, schools, hospitals, fire departments and farms. To make water clear, healthful and tasteful it must first be settled, aerated, filtered and chemically purified. Millions of dollars must be invested in dams, reservoirs, pumps, filters, pipe, valves, hydrants. Design and construction of a water distribution system is a major engineering job—no two are exactly alike. Management, operation and maintenance requires knowledge of engineering, hydraulics, chemistry, business administration and "human nature."

Sometimes, when you take a shower or drink a glass of water, silently thank the water works man who makes it possible to do so night or day, winter or summer—with only "a twist of your wrist."



This Series is an attempt to put into words some appreciation of the water works men of the United States.

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

SUBSIDIARY OF WALWORTH

Sewage Sludge Incinerator

347 C. N. Rees, executive vice president of STANDARD STEEL CORP., 5001 S. BOYLE AVE., LOS ANGELES, CALIF., announces the development of a new, low-cost and compact Sewage Sludge Incineration System especially designed for small and medium-size communities, and for some industries producing sludge-like combustible wastes. They system has been developed in conjunction with the Equipment Development Company of Montclair, N. J.

Aluminum Glass Covers for Sewage Treatment Plants

348 When you cover your sewage treatment plant's sludge drying beds with a Lord & Burnham glass building you increase the efficiency of the beds, eliminate nuisances and add to the attractiveness of the building. They are worth considering also as covers for trickling filters and settling tanks, etc. Write LORD & BURNHAM, IRVINGTON, N. Y., for *Engineers' Service Sheet* AC-159.

Small Tractor Does 30 Tasks

349 A 24-page booklet entitled "Power vs. Drudgery", points up the versatility of the 5-hp Gravely Tractor, which mounts 30 different power tools. These performance-proved tools make the Gravely an efficient year-round worker, whether mowing lawns or removing snow. For your copy, write GRAVELY TRACTORS, INC., DUNBAR, W. VA.

Outboard Motors for the Municipal Waterfront

350 There's an Evinrude outboard to meet the power needs of every type of small craft in municipal waterfront service. They are available in a complete range of models, from 3 to 50 hp. For details, write EVINRUDE MOTORS, 4317 N. 27th ST., MILWAUKEE 16, WIS.

Ups the Traffic Safety Factor

351 Properly laid reflectorized pavement markings are a staunch ally of traffic engineers who constantly work to make streets and highways safer. Cataphote waterproof reflective traffic beads clearly define street and highway contours and traffic lanes in fair and foul weather. For details, write CATAPHOTE CORP., TOLEDO 10, OHIO.

Utility Truck Bodies for Municipal Service

352 Compartment layouts in the Series CC line construction truck bodies, as well as complementary hydraulic derricks and other equipment, are designed for safety, comfort, and efficiency of municipal crews. For data on these cab crew bodies, write UTILITY BODY CO., 1530 WOOD ST., OAKLAND, CALIF.

Package-Type Pneumatic Sewage Ejector

353 The NEC-20, a low-cost package-type pneumatic ejector for handling small flows, is rated to deliver 18 gpm of raw sewage or wastes and is available with 3" or 4" connection. It incorporates features of packless flotation. Design is for applications involving low level sanitary features. For details, write NEW ENGLAND PUMP AND MACHINERY CO., 111 BROOK ROAD, QUINCY 69, MASS.

Photoelectric Lighting Control

354 If you desire a control for street lighting that is highly reliable, small size, low in cost, and with a circuit using no tubes or transistors, then you'll want to investigate Series 6600A controls, which uses a broad area cadmium sulfide photocell to drive a Sigma relay directly. Six models are available to meet different mounting requirements. For descriptive literature, write THE FISHER-PIERCE CO., 67 PEARL ST., S. BRAINTREE 85, MASS.

(See page 63 for more Bulletins)

NEW MODEL 507

TRAFF-O-MATIC® CONTROL

Provides Semi-Actuated Signal Control in its Most Advanced Form

Model 507 combines the maximum of flexibility obtainable in semi-actuated control with many new design features. Emphasis is on reliability and accuracy of operation, simplicity and ready accessibility of all components.

- **Advanced electronic circuit design employs unitized construction**
- **Printed circuit panels and line switch are jack connected**
- **Standard commercial high vacuum tubes are used**
- **Built-in directional detector relay permits direct connection to HRD Detectors**
- **A panel mounted "Detector Actuation" indicator light facilitates adjustment of timing dials**
- **New easy-open case is finished in textured green**

For further details, write for Bulletin C-123

TRAFFIC ACTUATED ®

AUTOMATIC SIGNAL DIVISION
EASTERN INDUSTRIES, INC.
NORWALK, CONNECTICUT

AMERICAN METERS

HAVE WHAT THE WATER SUPERINTENDENT WANTS

ACCURACY UNSURPASSED

AMERICAN Solid Casing Meter

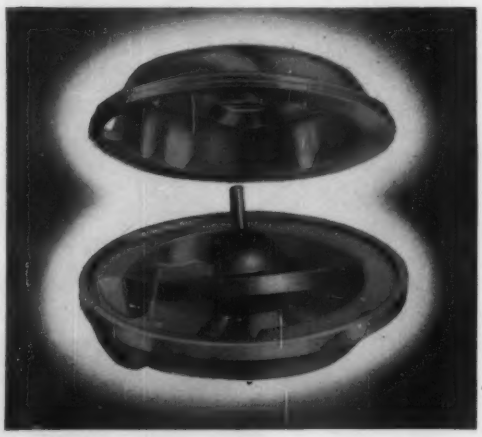
- **THICK DISC**
- **PRECISION MANUFACTURE**

AMERICAN METERS are designed for accuracy; accuracy that resists changes caused by wear; accuracy that assures a full return for water delivered — even after many years of Service.

The reason for this accuracy record is the thicker measuring disc used exclusively in AMERICAN METERS. Increased thickness reduces slippage between disc and measuring chamber wall and the seal is maintained in any position of the disc.

Precision machining of all parts reduces friction and wear for continued measuring accuracy.

Yes, tests prove, AMERICAN METERS have the high degree of Accuracy Water Superintendents want!



- The thick disc in AMERICAN METERS makes a more efficient seal against slippage than a thin disc with the same clearance.

BUFFALO METER COMPANY
INCORPORATED

2902 Main Street
Buffalo 14, New York

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50.

New Diesel-Powered Tractors and Attachments

355 There's lots new in the John Deere line. A more powerful, more responsive diesel engine for the "440" tractors—the 2-cycle GM "Jimmy"; the first 5-position backhoe in the field—the No. 51; an answer to speedy, low-cost loading—the 831 loader; a new center-position backhoe—the No. 50, with reach and power to tackle any trenching job. For details, write JOHN DEERE INDUSTRIAL DIV., DEPT. D-49-H, MOLINE, ILL.

Long-Reaching Front-End Loader

356 Longer-reaching, faster-loading Tractoloaders get the job at hand done more efficiently. The 2-yard TL-20 dumps right into the center of a 12-ton truck; doesn't waste time dozing loads. It even has enough reach to load gondola and hopper cars. For details on this and other 2- and 4-wheel-drive Tractoloaders, write TRACTOMOTIVE CORP., DEPT. AC, DEERFIELD, ILL.

Rugged Parking Meters

357 When maintenance costs of a parking meter are consistently low and revenue consistently high, that parking meter gives exceptional service. Simplicity of construction and unusual ruggedness give MI-CO manual meters a long productive life. For details, write MI-CO PARKING METERS, P. O. BOX 668-AC, COVINGTON, KY.

Reflectorized Traffic Signs, Lane Markings

358 Hints on how to make your budget for reflectorized traffic signs go further are offered in a new booklet, available from FLEXO-LITE MFG. CORP., 8301 FLEX-O-LITE DRIVE, P. O. BOX 3066 (AFFTON BR.), ST. LOUIS 23, MO. Outstanding features of free-flowing glass beads for traffic-lane marking are also given.

If Your Street Lights Break from Heat

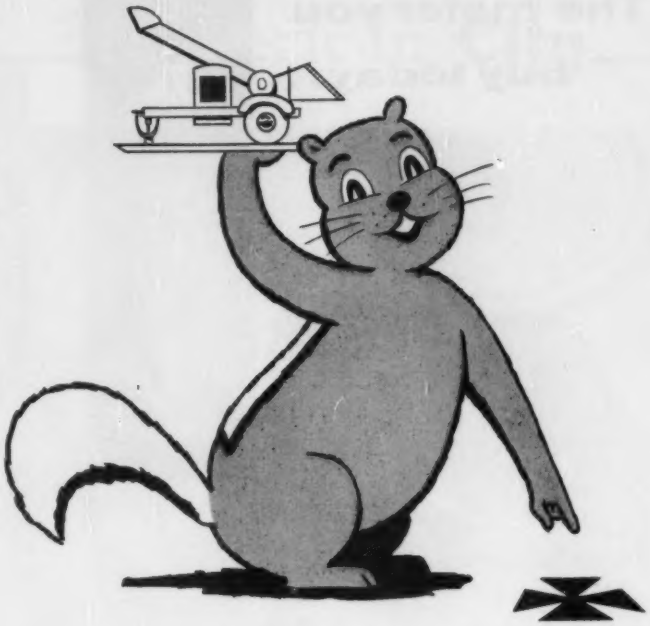
359 Cities suffering from excessive breakage of large street lighting lamps, traceable to intense heat, should look into literature on *special heat-resistant glassware*, available from JOSLYN MFG. AND SUPPLY CO., 155 N. WACKER DRIVE, CHICAGO 6, ILL. manufacturer of the Type MV-131 400-watt mercury luminaires with this type of glassware.

Up-to-Date Fire Hydrant

360 The Mathews hydrant is so designed that in case of accident its barrel can be replaced without excavating. Its head revolves 360° and its stuffing box plate (cast integrally with nozzle section) provides leakproof construction. Its operating thread operates free of rust, sediment and ice. For details, write R. D. WOOD CO., PUBLIC LEDGER BLDG., INDEPENDENCE SQ., PHILADELPHIA 5, PA.

Assists Biological Oxidation of Liquid Wastes

361 Dowpac, a wetted-wall packing, has been developed for use as a surface media for the growth of biological slimes in trickling filter-type biological oxidation towers. It also functions as an aeration device for activated-sludge-type biological oxidation. Its applications in waste treatment are fully discussed in *Bulletin* 171-113, available from THE DOW CHEMICAL CO., PLASTICS DEPT., MIDLAND, MICH.



You name the place

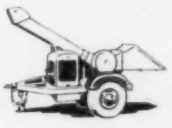
. . . and *without obligation to you*, a qualified representative will arrange a prompt demonstration of the fastest, most economical chipper in the world.

Then you can see for yourself how aggressive is the new power unit of ASPLUNDH CHIPPERS; how it hungers for great loads of bulky brush; how easily it consumes limbs of 6″ diameter.

And remember, the efficiency and economy of the completely safe, simply designed ASPLUNDH CHIPPER has been *proven in service* by the largest tree company in the world.

You will see, in demonstration, that an ASPLUNDH CHIPPER is, by far, the best buy in chippers on the market today.

WRITE TODAY for FREE illustrated folder and for a demonstration.



ASPLUNDH CHIPPER COMPANY
505 York Road, Jenkintown, Pa.
By Actual Test the Fastest Chipper Made

The meter you buy today...

will it meet *1988* standards?

When buying new water meters, a most important question of cost is: "In 30 years will this meter be *scrapped*, or will it be rebuilt to *1988* standards at a fraction of the cost . . . ready for years more accurate service?"

Take a look at the *past* 30 years. Think how much you're saving *this* year on Trident meters installed back in 1928 . . . or even 30 years before that.

Under Trident's strict policy of interchangeability, all improved parts are designed to fit old Tridents too. These up-to-date Trident parts embody every thoroughly tested advancement known to metering science. Not only is repairing easy and economical, but also you actually modernize your Tridents as you go.

This has been a rigid Neptune policy for 60 years. *Every design improvement now on our drawing boards will continue it.* It's your best assurance that the Tridents you buy today will stay modern, earning maximum revenue for your water system . . . at lowest cost . . . for many years to come.

283

NEPTUNE METER COMPANY
19 West 50th Street • New York 20, N. Y.
NEPTUNE METERS, LTD.
1430 Lakeshore Rd. • Toronto 14, Ont.
Branch Offices in Principal American and Canadian Cities.

neptune
TRIDENT WATER METERS

The Dallas-Fort Worth Turnpike has made a dynamic impact on urban growth here.

From Fort Worth to Dallas

By JACK H. DAVIS, *Engineer-Manager*
Texas Turnpike Authority, Arlington, Texas

IN traffic moved, time saved, safety and convenience, the 30-mile Dallas-Fort Worth Turnpike is a Texas success . . . BIG.

During the turnpike's first year of operation, more than 113 million miles have been traveled by more than 5 million vehicles carrying an estimated total of 13 million motorists.

Yet, only 90 accidents occurred. There was *one* fatality and only 27 cases of personal injury, with only two serious enough to be retained in the hospital. Only 30 of the ac-

The $58,500,000 Texas turnpike from downtown Fort Worth to downtown Dallas cuts traveling time in half.

cidents involved as many as two vehicles.

An unusual feature of this "safest in the nation" turnpike is its design to accommodate and encourage the growth of communities along its route. Entrances and exits are situated to provide efficient and convenient transportation to important industrial areas nearby.

Safety a Prime Objective

Here is a turnpike that takes motorists into the hearts of the two terminal cities. City traffic is not even encountered in entering or departing the downtown districts of either Dallas or Fort Worth.

Curves are slight, grades low, and pavement visibility is never less than 725 feet. Its two 3-lane roadways are each 37 feet wide, an extra foot wider than most superhighways for the added safety of middle-lane cars traveling in each direction. In addition, there are 10-foot, hard-surfaced safety shoulders to the right of each roadway and 4-foot shoulders on the left. A central dividing area—in rural areas a depressed grass strip 40 feet wide, and in urban areas an elevated safety curb—is used to separate opposing traffic.

Still another important reason for the turnpike's safety record is the application of an adequate lighting system for nighttime driving. During the first year of operation there were no nighttime fatalities, and only 16 personal injury accidents have occurred during the hours of darkness, for there are nearly 4 miles of continuous lighting at each end of the turnpike, as well as illumination at each interchange.

The 20,000-lumen mercury vapor lamps are mounted 32 feet above the roadway on Monotube aluminum poles manufactured by the Union Metal Manufacturing Co., Canton, Ohio. The poles are spaced 100 feet apart, staggered.

The tangible evidence of turnpike planning, engineering and regulation is apparent on examination of the year-end accident statistics. Night as well as day, the Dallas-Forth Worth superhighway is proving the value of a roadway aimed at "safety first."

Traveling Personnel Office

PHOENIX, Ariz. now has a mobile Personnel Service Office. This arrangement was accomplished by taking a surplus city passenger bus and converting it for use by the Personnel Department to carry on certain basic phases of its program. The air-cooled bus is fully equipped with flexible facilities to serve the programs of recruitment, job testing, in-service training, safety and health.

Phoenix, Ariz. converts a surplus passenger bus into a mobile municipal office.

A Mobile Unit

The traveling office was designed to solve two general problems. It is uneconomical to bring employees from the field operations to a central location for safety and in-service training, medical examinations and counseling. It has been found that blue-collar employees do not exercise their initiative to come on their own time to evening safety programs or to the Medical Center for annual health evaluations. This traveling office is expected to solve both of these problems. In addition, it will be used in recruiting applicants.

The interior of the bus is attractively decorated and arrangements for employee comfort have been kept in mind in the rebuilding of the bus. The exterior of the bus is trimmed and lettered in green with a white background. Lettered information publicizes the various services of the personnel program and in particular the recruiting effort of the city.

The seating facilities will accommodate some 30 people. Folding chairs are used so that they can be removed when the bus is converted to the use of the medical program, and for seating applicants and employees along tables for recruiting and testing. They are arranged according to theater seating for showing training and safety films. Tables run the length of the bus on each side and are fastened by piano hinges, which allows them to be raised to shut out the light from the windows during the showing of film.

Medical Office

Storage bins have been built over the wheel housing to contain the folding chairs, medical equipment, applications and city information. A heavy, attractive draped curtain is used to black out the light in the front for movies, and serves as a partition to divide the bus into a medical office and reception room when the office is operated as a medical center.

The medical examination program now carried on by a central office can be offered through this mobile unit, with the exception of examining by X-ray. Medical examinations include eye, ear, blood and urinalysis testing and an overall medical examination conducted by a licensed physician.

Plans call for taking the bus to places where large congregations of people gather, such as the State Fair, large neighborhood shopping centers and sports events. Not only will the mobile office provide information on city employment and the personnel program in general, but it will have literature on all phases of the city government for distribution.

Cincinnati's new $3,000,000 headquarters and maintenance building is located in the virtual center of the water system. It will house Commercial Division, and the engineering and administration offices of the Distribution Division.

Two independent studies agree, and actual experience proves, that for Cincinnati and its immediate neighbors . . .

A Metropolitan Water Works Is Best

By CHARLES M. BOLTON
Superintendent of Water Works
Cincinnati, Ohio

CINCINNATI'S metropolitan problems are similar to those in most cities. Its corporate boundary line bears no resemblance to a line demarking urban development from rural areas. It is hemmed in by satellite cities, and in turn, completely surrounds three smaller cities. There were, therefore, many problems confronting not only Cincinnati but its neighbors in the establishment of a metropolitan water works system.

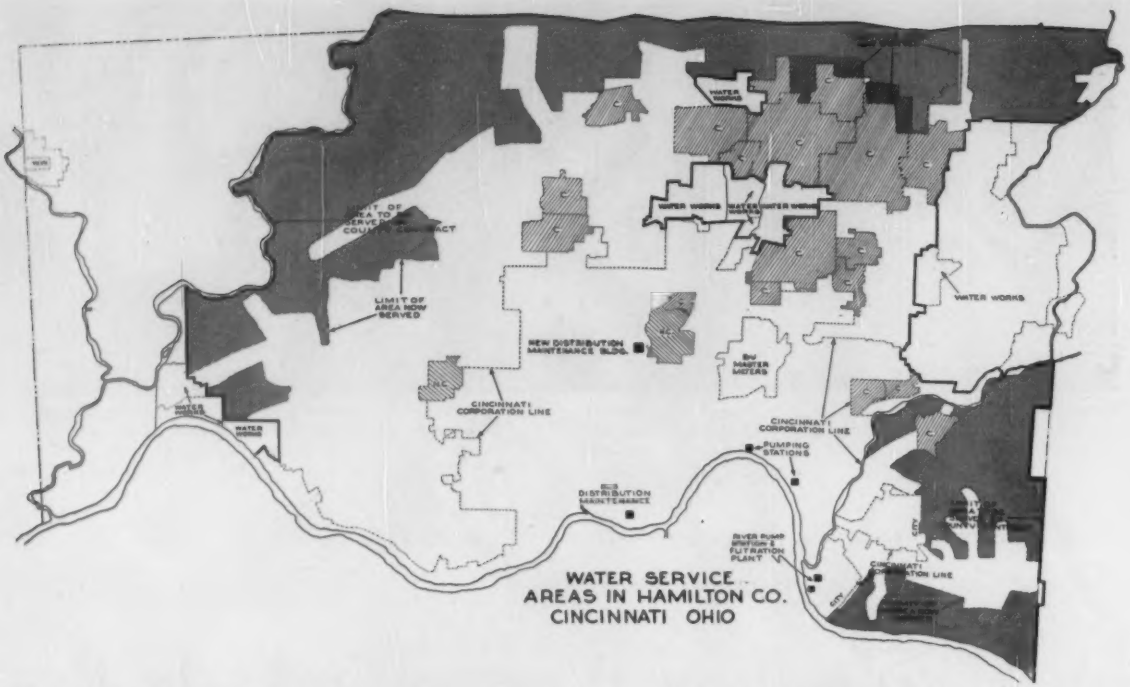
The city had an excellent basic system, which was completed in 1907 and improved and modernized many times prior to World War II. In the 1940's, however, it became quite evident that many facilities had to be enlarged, so we started an improvement and expansion program immediately after the war. The first improvements installed were necessary, whether we served only Cincinnati, or expanded to include most of the county. Prior to 1950, however, we realized that additional improvements to the system could be properly planned and economically financed only after determining what areas were to be served over a long period.

Our surrounding neighbors had their problems but of a different nature. Their principal problem consisted of obtaining an adequate supply. This was most acute in the highly industrialized small cities to the north, some of which had their own small systems and some depended upon us and other neighbors. All, except our customers, depended upon wells drawing from a rapidly falling water table. The problem was so acute that a group of the larger industrial users formed their own company and developed a well system some 15 miles away, in the Great Miami River Valley.

Actually, the Cincinnati system had, to some extent, operated as a metropolitan system for a great many years, supplying many customers along its periphery. These were served at an arbitrarily established 50% incremented rate. The service, in many cases, was far below the standards within the city. Real estate developers, benefit districts, or other public agencies constructed many of the pipelines beyond the city. In some instances, 6-inch lines had been extended again and again, to the extent that none of the customers had a satisfactory supply.

From an investment standpoint,

Adding two 15-mgd pumps has increased the capacity of this booster station from 10 mgd to 30 mgd. Old portion of station can be seen in the background.



KEY: *Water Works*—indicates the seven small systems serving ten communities within the Cincinnati Water Service Area; their total population of 35,000 represents less than 5% of the county population east of the Great Miami River. *Crosshatched Areas "C"*—communities served by county contract; two areas marked *NC* represent incorporated areas served under county contract provisions, but with which no contract exists. *Shaded Areas*—metropolitan system obligated to serve these areas but as of 30 months after signing of contract, mains have not yet reached these areas; most of this area represents rugged country that will develop slowly, with or without the availability of water. Four small cities included in the group of ten communities having their own systems are astride all routes by which the farthest northern parts of the county can be served. The Metropolitan Water Works has standby agreements with three of these in return for laying transmission mains through their corporate limits. Note central location of new distribution maintenance building.

the city could not build transmission mains to improve service to these areas, since there was no guarantee of the length of time any outlying community would be served. Two areas had left our system and incorporated with the systems in the satellite communities. The fact that the existing Cincinnati rate was not meeting expenses further complicated the problem, for there were no monies available for expansion.

Problem Studied

To resolve the problem, the city engaged the firm of Black and Veatch, consulting engineers, Kansas City, to—

1. determine whether the city would best confine its future planning to its own corporate limits, or, to serve the metropolitan area;
2. determine the facilities necessary if we were going to serve the entire metropolitan area; and
3. determine a proper rate, both for city and outside of city customers, to support both operations and the necessary capital improvements

The Hamilton County Commissioners, acting on behalf of the unincorporated townships, and at least a dozen incorporated cities, engaged A. LeFeber and Associates, Cincinnati, to make a corollary study. These studies of course took many months, but there was little discrepancy in their findings. The logical solution was a metropolitan water works.

On the basis of the engineering and fiscal reports, we started negotiations to establish a firm contract between the city and the county and many satellite communities to expedite proper expansion of our system to serve all areas feasible to reach. Enough cannot be said about the laborious and meticulous work that went into these negotiations. Principals included the utilities committee of City Council under the chairmanship of Jack Gilligan and the Board of County Commissioners of which James Clark, Jr. was president. The technical and legal staff and consultants of both entities spent many hours and days presenting the numerous details of the problem. Although different political parties controlled the city and county, the resulting contract represents a true meeting of minds of two entities for the mutual benefit of their constituents.

Contract Provisions

The contract signed in January of 1955, provided that:

1. The city would continue in complete control of the Water Works and set its own basic rate schedules. The county rate could not be more than double the city rate. This latter was based on operations of the entire system, plus amortization of the investment necessary for doubling the capacity of the plant to serve the county areas.
2. The city was obligated to finance upwards of 25 million dollars in supply, storage, treatment, and transmission facilities from revenues obtained.
3. The county would install small dis-

tribution mains, which they have elected to do on an assessment basis. (Distribution mains within the city continue to be installed in practically the same manner.)

4. The contract was to run for 30 years, which virtually assures amortization of the investment.

5. The county agreed not to aid or abet the expansion of any other water works system, within the areas to be served, except as might be required by law.

6. The city guaranteed that small municipalities not covered by the contract would not be given preferential treatment when they elected to enter into contractural relations with the city. (This does not affect an earlier contract whereby one city of 35,000 is served by master meters.)

7. The county has the right to dictate which new areas should first be supplied by transmission mains, insofar as their choice was compatible with an organized procedure.

8. The city could require the county to obtain right of way through villages not covered in the contract.

The last two items appear to be details, but are mentioned to illustrate the point below. The spirit of cooperation, born of necessity, if you wish, and nurtured in the negotiations, has matured in the implementation of a contract. *Item* 7, for example, has never been invoked by the county commissioners; nor has *Item* 8, been invoked by the city administration. *Item* 6 has proven a benefit to the Water Works. We can tell those who seek preferential treatment that our contract prohibits such. Several municipalities not covered in the original contract have signed identical contracts—no favoritism can occur.

Certainly there have been many problems. These were resolved by occasional meetings between C. A. Harrell, city manager, and the county commissioners. More frequently, conversations are between William Sahnd, superintendent of Water Distribution, and George Lemmel, county engineer.

Growth Incentive

As one might expect, the expansion of the water system into areas either devoid of, or with less than, ample supply, enabled metropolitan Cincinnati to develop more rapidly than at any time in the past 50 years. The demand, expected to be great, proved to be far beyond our estimates. Transmission mains, originally contemplated by 1960, were scheduled forward and are now finished. Mains to further areas, expected to be needed after 1960, are now in demand, and in two instances already under construction. Some mains, originally expected to be needed after 1965, are in demand. In one instance a mile of 36-inch main is under construction.

The county's engineering forces have a large backlog of petitions for distribution mains by property owners. The expansion of the distribution system developed so many new customers in the past three years that the fiscal soundness of the entire program is assured.

Construction Progress

More than half of an entirely new river pumping station is under contract and will be completed in time to meet peak demands expected of our customers in 1961. This new station and intake pier will provide for six electric pumps, four of which will be installed initially. These four will have a capacity of over 200 mg per day, and will allow the retirement of four steam pumps that are now in use and are over 50 years old. However, four electric pumps in the present station, plus the four new ones will give us a pumping capacity of slightly less than 300 mgd, or approximately twice any peak load we have experienced up to the present time.

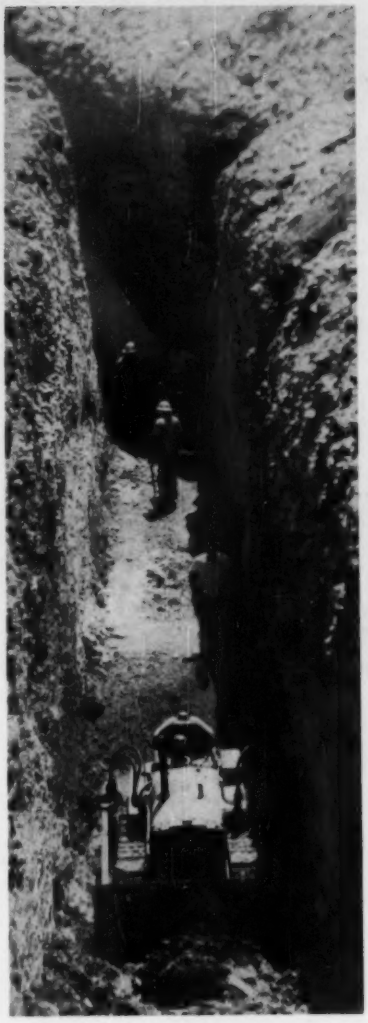
One booster station has been enlarged from 10- to 30-mgd capacity and a second booster station with a 5,000,000-gallon underground reservoir is practically complete. This reservoir will bleed from the system at times of low demand and repump into the system at peak demand, thereby maintaining a more constant pressure in that particular area.

In addition, we will soon complete construction of a new garage, storage yard, and shops to house the Distribution Division. This facility is located in the virtual center of the system.

Our treatment plant, enlarged about 20 years ago, has a capacity of 180 mgd. It is possible that in the late 1960's we will expend some $3 million to further expand this treatment plant.

Financing

The total cost of the program comes to approximately $30 million. We expect to finance half of this through revenue bonds and half from income received from water sales during the expansion period of 1956 through 1962. Rates established concurrently with the city-county contract permit Cincinnati customers to compare favorably with those in similar cities, and permit county customers to compare favorably with those county areas served by small rural systems.



Economical expansion requires looking into the forseeable future. Here a 36-inch main is being laid in a 22-foot trench to accommodate an express underpass, scheduled for construction within the next two years.

A compilation of statistics could be made to prove the success of approaching our water problem from a nonpolitical standpoint. We are of the opinion, however, that readers of THE AMERICAN CITY are familiar enough with this type of problem to know that any metropolitan area with water problems will flourish if those problems can be resolved. We hope that the accompanying map will illustrate the complexity of our problems and the success of their solution.

Richmond's 14 chemical spreaders go into action as soon as icing conditions occur. Hills and bridges receive first attention.

We Follow the "Book"

. . . written in

Richmond, Va.

for this city's

snow and ice problems,

updated annually

By ROBERT S. HOPSON
Director of Public Works
Richmond, Va.

ONE might say that we operate our ice and snow control activities pretty much from the book. This book, entitled *Emergency Organization for Snow and Ice Removal,* has been worked up through the years and is brought up to date each year. It incorporates our best thinking on the ways and means of properly handling snow and ice emergencies.

The booklet, printed on paper of various colors representing the different phases of the work, covers these subjects:

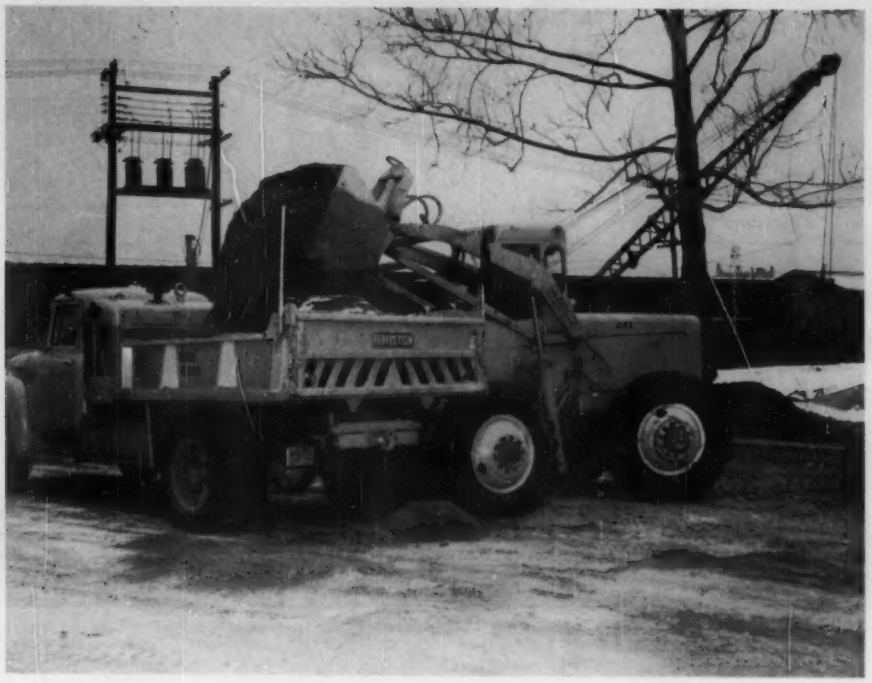
1. personnel in charge
2. policies and procedures of snow work
3. chemical and sand treatment program
4. snow plowing
5. snow removal

Most of our storms can be classified as routine, but now and then we get a severe one that really tests our program. The last such storm struck on February 15 1958, bringing seven inches of snow and extremely low temperatures. During the initial steps of our program we confined activities primarily to sand and chemical treatment of main thoroughfares, hills and bridges, and known trouble spots. When the accumulation had reached four inches, the snow plowing program began. Temperatures remained considerably below normal for some time after the storm and we had to reapply sand and chemicals almost continually. But with all the problems, we feel the program was reasonably effective.

Two Basic Programs

As soon as icing conditions such as light snow or sleet on the streets become apparent, the chemical treatment program takes over. Under this program we rely heavily on our 14 Tarco "Scotchman" chemical spreaders and 11 sand spreaders. All routes are planned to cover primary streets first, and then the secondary streets. For this work the city is divided into 11 chemical-treatment routes and 11 sand-treatment routes.

The operational features of snow plowing become effective as soon as snow reaches a depth of four inches. We have 26 snow-plowing routes.



The city uses both sand and chemicals in its fight against snow and ice. Here a Hough Payloader loads sand from one of the city's stockpiles.

Routes 1 through 25 are handled by two trucks each, and Route 26 is covered by the city's four Galion and Allis-Chalmers motor graders. Each truck has a driver and a helper, while only one man works on each grader.

This winter we plan to experiment with sand and calcium chloride mixed in a blending machine. We believe this idea has merit inasmuch as blending would give a more thorough mixture that would adhere to the streets instead of being swept to the gutter area by traffic. Should this operation prove practical and economical it will eliminate the storage problem of chloride, since the local sand and gravel companies would handle storage for us.

As is the case in most cities, snow is removed from the central business district and other designated areas.

During the snow-fighting emergencies, an accountant at emergency headquarters keeps a running account of labor, equipment and material costs. This information is dispatched to the main office at 8:30 a.m. each day. ***Table 1*** lists the equipment we have available for snow and ice control work.

Table 1—Available Equipment for Snow and Ice Control

Chemical Spreaders—truck-mounted
14 Tarco "Scotchman"—tailgate

Sand Spreaders—truck-mounted
1 Highway Model DD—tailgate
8 Burch X Cel—tailgate
1 Good Roads——tailgate
1 Fox—body type

Snow Plows
54 truck-mounted, straight-blade plows
8 motor graders—various types

Snow Removal
3 Barber-Greene belt loaders
3 Hough front-end loaders—rubber-mounted
1 Unit shovel—rubber-mounted
(Front-end loaders and Unit shovel also used to load sand for spreader trucks.)

Flushers
4—1,500-gallon Street Flushers. This equipment is used to flush snow and slush from streets when temperature permits, and is also used to flush chemicals from concrete bridge decks after storm.

Supervision
11 sedans and pickup trucks equipped with mobile relay radio regularly assigned to program.
15 additional sedans equipped with mobile radio available, if needed.

The emergency organization booklet gives detailed instructions under each major subject heading. For example, under the heading Personnel In Charge is listed the name, address, and phone number of overall supervising personnel; persons in charge of the various divisions, districts or special jobs; police department coordinators, business management, and others connected with the work.

Detailed Instructions

The chemical- and sand-treatment route lists give the route number and designate the primary and secondary streets where appropriate. The snow-plowing route list gives the route number; the number of the trucks assigned to each route; name, address and phone number of personnel assigned to each truck, and a list of the streets constituting each route. The booklet also lists the name, address and phone number of all personnel in the various city departments who may be called upon to assist in the emergency program.

The program's clear-cut lines of authority, descriptive information on all phases of the work, and well-defined routes, bound together in a single booklet, eliminates guesswork, reduces the possibility of confusion even in times of sudden emergency, and makes for a more effective snow and ice removal program.

Careful alignment made it possible to lay 102-inch diameter concrete pipe on a long radius curve using straight lengths.

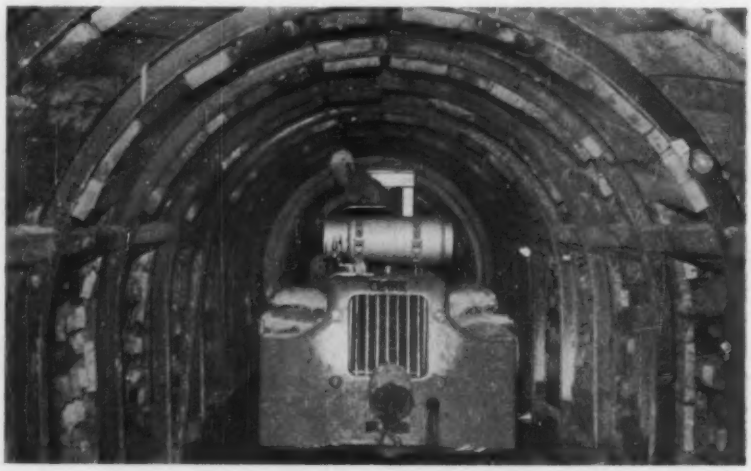
Big Pipe Job Eases Indianapolis Sewer Problems

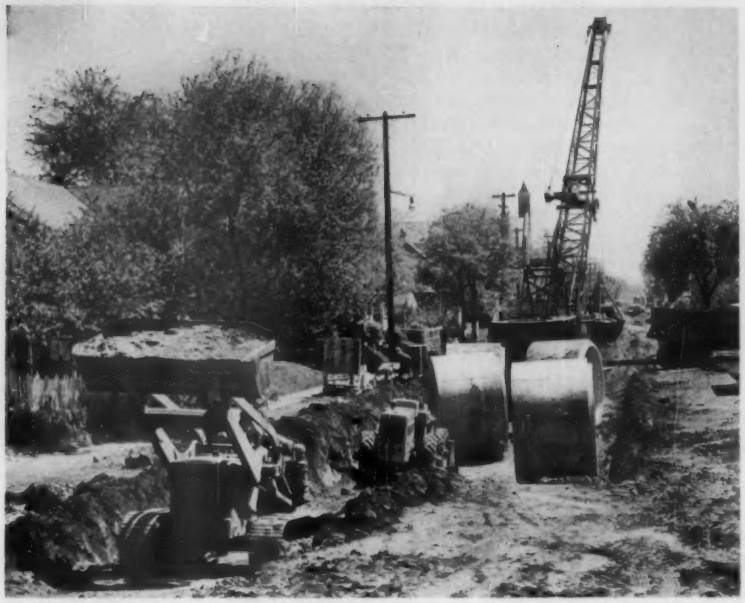
Separation of storm and sanitary flow plus additions to treatment facilities reduce White River pollution

By JAMES C. COURTNEY
President
Board of Sanitary Commissioners
Indianapolis, Ind.

THE Indianapolis Sanitary District will soon complete a $50,000,000 sewer program designed to eliminate costly overflows of inadequate sewers and pollution of the White River. Another $7.5 million has gone into sewage treatment plant expansion, increasing plant capacity to 120 mgd. The sewer work involves the laying of more than 50 miles of precast, reinforced-concrete pipe for both sanitary interceptors and storm sewers. Nearly 20 miles of this pipe ranged in diameter from 5 to 9 feet. The total footage includes both trunk lines and laterals.

The East White River relief inter





A Caterpillar Traxcavator and Hough Payloader remove excess material before trenching begins on a 102-inch diameter section of the East White River interceptor.

ceptor, the Belmont Street Interceptor, and the Kessler Avenue storm sewer projects, constitute three of the more important sections of the over-all program.

Tunnel Operation

The East White River interceptor runs from the White River at East 10th Street to 16th Street and Northwestern Avenue, a distance of approximately 8,000 feet. It is designed to carry sewage from the northern part of the city to the sewage treatment plant. This project included the laying of some 8,000 feet of 72-inch reinforced concrete pipe in a tunnel bored through sand and gravel soil. The tunnel, 9 feet in diameter, is lined with steel ribs and wood lagging.

Tunneling operations, using an Eimco mucking machine, progressed at an average rate of 30 feet per day in two headings in opposite directions. Workmen used a portable saw rig to cut lagging on the job from 3-inch material. It was then driven on top of the steel ribs.

An 8-inch concrete floor, laid after the completion of each run of approximately 1,000 feet in length, provides a firm base for the pipe. A Clark 10,000-pound capacity fork lift truck transported the 6-foot pipe sections, riding over the concrete base.

Laying operations consisted of leveling and blocking the pipe in place and filling the joints with bituminous mastic. The space between the pipe and the tunnel roof and walls was filled with 8-inch slump concrete placed from the ground above through 6-inch steel pipes placed on 30-foot centers. The high slump and use of small aggregate (nothing larger than ½-inch) permitted the concrete to level itself and fill all voids.

Tunnel Under Canal

Natural coverage over the tunnel roof averaged 20 feet, and at one point the tunnel runs for 150 feet under the Indianapolis Water Co. canal. Square and Marra Construction Co. were general contractors on this job, including the tunnel work. Robert Thomas and Charles Patrum served as superintendents. The contract price amounted to $1,648,600.

A section of the Belmont Street sewer connects with the previously mentioned tunnel project and involves crossing of the White River. Thomas D. Nolan, of Louisville, Ky., handled the river crossing portion of the job. He used the open cut method, keeping the trench dry by the use of sheet steel cofferdams. The contract for this phase of the work amounted to $538,200.

Some of the biggest pipe went into the Kessler Avenue storm sewer project. The work includes 2,100 feet of 102-inch, 586 feet of 66-inch, 2,320 feet of 60-inch, 1,400 feet of 54-inch and various lengths of smaller-diameter pipe, the latter used chiefly for laterals. This work was let in three contracts, with awards going to H. D. Tousley &

Left:
A fork lift truck carried the 72-inch pipe into the tunnel. Note timber lagging driven above steel arch supports.

Right:
Concrete, discharged through a 6-inch pipe leading to the tunnel, filled the space between the pipe and tunnel walls.

Co., Thompson Construction Co., and Vogel Construction Co., all of Indianapolis.

A section of storm sewer in the northern part of the city, being built by Columbia Construction Co., Inc. of Indianapolis, used 260 feet of 108-inch and 1,276 feet of 84-inch concrete pipe. The outfall section of this sewer, being built by Square & Marra and terminating at the White River, is 144 inches in diameter and of monolithic construction.

Two manufacturers, Independent Concrete Pipe Corporation of Indianapolis and the Pipe Division of J. E. Evans Concrete Products, Inc., Shelbyville, Ind., supplied all pipes for the entire program. Consulting Engineers for the interceptors are: Moore & Heger; Henry B. Steeg & Associates, Inc.; Garns & Moore; Fleck, Quebe and Reid; and J. Ben Wilson. Consulting engineers on the storm sewer sections include: Bevington, Taggert & Fowler; William R. Hunt; Hannan, Meek & Cordill; Moore & Heger and Henry B. Steeg & Associates, Inc. All are Indianapolis firms.

Bond-Financed

The Indianapolis Sanitary District, a separate taxing unit established by action of the Indiana State Legislature, financed the project through the sale of bonds. The Legislature has authorized a debt limit of 8%, which amounts to $61,500,000 based on the $768,000,000 assessed valuation on property within the Sanitary District. This includes the City of Indianapolis and parts of Marion County.

A large-scale program such as we are now undertaking was long overdue, for existing sewer capacity was about 20 years behind the needs of the area. Many old sewers backed up into basements and a survey disclosed 12 points of dangerous pollution by raw sewage flowing into the White River.

Rapid growth, both in industrial and residential areas, rather than any human failure caused the critical condition of the sewer system. Completed sections of the program have already relieved this condition, and the over-all program will do much toward wiping it out completely.

Police Wreckers Clear New Orleans Streets

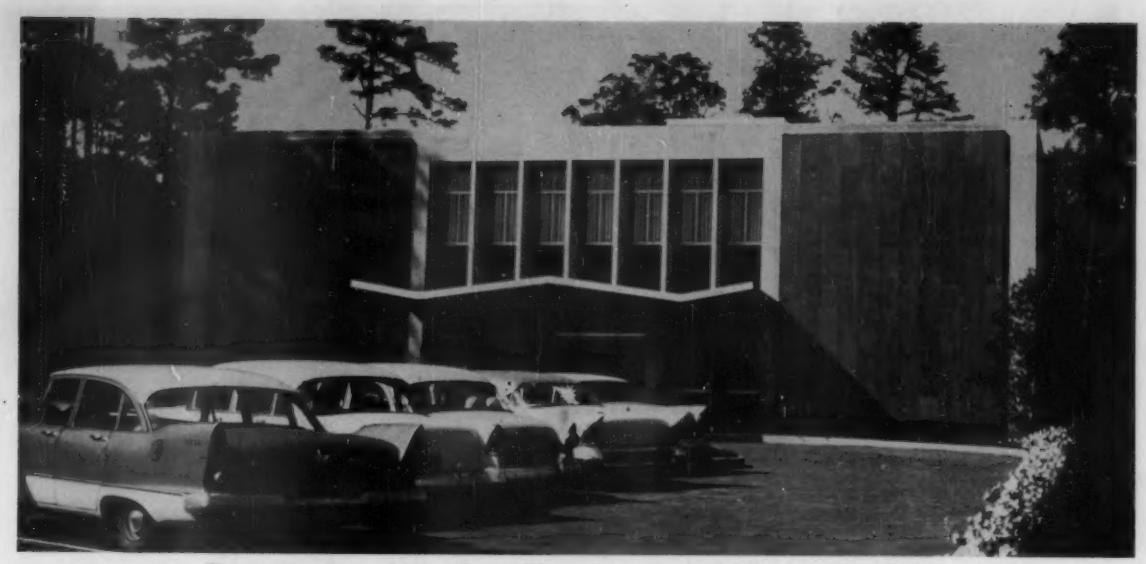
Holmes wreckers owned by New Orleans police.

POLICE TOW WAGONS with wrecking equipment made by Ernest Holmes Co., Chattanooga, Tenn., operate out of our Auto Theft Division. They are used to impound illegally parked vehicles and abandoned automobiles, and to clear streets and highways of wrecked automobiles.

A wrecked auto taken into the Abandoned Car Lot will be held until claimed by the owner, who pays a small fee for towing and storage. Abandoned automobiles not claimed are sold at auction to junk dealers.

Simply stated, the tow wagons permit us to keep the streets and highways safe and free from the unsightly appearance of junk cars.

JOSEPH H. MURRY, SR., *Lieutenant*
Department of Police
New Orleans, La.



This typifies the attractive office buildings being erected in Birmingham's suburbs.

An "Office Park" in a Triple-A Suburb

Strict zoning insures residential atmosphere for a commercial development in one of Birmingham's finest suburban areas

By ASA N. GREEN
City Manager
Mountain Brook, Ala.

A NEW type of "Office Park" zoning which permitted the erection of office buildings in high-class residential community has so far proved beneficial to all concerned.

Our city fathers were at first dubious of the idea of permitting office buildings in our midst. It looked too much like business trying to invade the finest residential area in the Birmingham metropolitan district. The developers had to do a lot of explaining and make many guarantees before the Birmingham City Council would approve the proposed development.

These were to be home office buildings with no retail businesses of any kind, no deliveries and practically no traffic on the part of the public.

They would present quiet surroundings in which people could work—an atmosphere of trees, shady lawns, quiet streets and plenty of parking space. This would contrast with the hubbub of downtown Birmingham — commuting, parking, and waiting for elevators to reach upper floors.

The first restriction on Office Park was that there should be only offices with no retail business, which would require deliveries and heavy pedestrian and vehicular traffic. Next, buildings must be set back 40 feet from the street and not occupy more than 25% of the lot space. Each lot must have a minimum area of 25,000 square feet and ample off-street parking must be provided. Office buildings are restricted to two stories and a basement. No manufacture or storage of materials is permitted. No electrical or neon signs are permitted, and identifying signs for the offices must be of uniform design.

No building can be erected until it is approved by an Architectural Control Committee made up of three members, all of whom must be owners and lessees in the development. Of course, their activities are subject to approval by city building officials and the Zoning Board and must be in line with the original blueprint laid out for Office Park.

Under this arrangement five highly attractive buildings of contemporary design have been erected. Three are occupied by the Republic Steel Company, Vulcan Materials Company and Bob Luckie Advertising Company. Two of the buildings have multiple tenants including General Electric, Worthington Corporation, Ralston Purina Company, Timken Roller Bearing, Aluminum Company of America, Universal Atlas Cement Company and others.

All buildings are air-conditioned. All utilities are furnished except telephones. All buildings have luncheonettes for the benefit of tenants. In the multiple-tenant buildings recreational rooms are maintained by the landlord.

Space in the buildings rents from $4 to $4.50 per square foot with the minimum space for any tenant being 600 to 700 square feet. Also, lots will be sold to concerns desiring to erect their own office buildings, with the price of land ranging from $100 to $150 per front foot. Already two tenants have erected their own building. Other office structures are planned.

Office Park was designed by Lawrence S. Whitten, who has been the architect for most of the buildings Contractors so far have been Brice Building Company and F. R. Hoar & Son.

To replace a flimsy 50-year-old bridge with a sturdy 1959 model at the same site . . .

1. . . . Minneapolis first strengthens the old piers and raises them so that the new bridge would make the river navigable . . .

2. . . . then its crews put piling under the bridge floor and cut the old trusses away, leaving the old deck for a working platform . . .

Rebuilding a Bridge Around a Bridge

By ROGER A. HARRING
Assistant Bridge Engineer
Minneapolis, Minn.

ONE thing was certain—the half-century-old Lowry Avenue bridge had to be raised and strengthened. As it was, it obstructed progress two ways: it blocked the new navigation channel in the Mississippi River reaching into North Minneapolis; and it was designed for only 10 tons—too light for the trucks of today.

Nevertheless, the bridge was in the right place, so the city decided to build a new one, and use the old one for a working platform. Portions of the old steel truss and the asphalt plank deck could at least support much of the equipment.

To make the new truss high enough to be out of the way of shipping meant increasing the height of the existing piers and abutments. Consequently workmen drove steel sheeting around the old piers and wood piling inside the sheeting. They then put anchors in the old stone piers to hold the new concrete firmly to it.

Since the old bridge simply would not support ready-mix trucks, city crews installed a pump-crete machine at the west end and laid pipe across the old deck. A system of laterals connected this pipe with the pier forms, while "tremie" pipes were used to place the concrete in the pier forms under the water.

Photo 1 shows one pier completed and another formed, ready for pouring. The old stone piers can be seen in the background.

After the piers were poured, workmen removed the old bridge planks and reduced the deck width from 36 to 16 feet by moving the steel stringers together, relaying the old planks. This provided a bridge floor strong enough to support the cranes used to drive piles, remove the old trusses, and erect the new structure.

Next they put piling under each floor girder, capped and shimmed tightly ***(Photo 2)***, and cut the old trusses away and sold them for scrap. This left a clear deck to erect the new, stronger girders.

Since the new bridge was to be wider than the old, a row of piling had to be driven outside the line of the old bridge to support the falsework. A steam hammer on a barge in the river handled this work. The piling and the bottom chord of the old bridge provided bearing points for falsework used for the erection of the new bridge and a walkway for the erection crew ***(Photo 3)***.

The city awarded a contract for fabrication and erection of the bridge to the American Bridge Company, who sublet the erection to the Beasley Construction Company. Erection proceeded very smoothly, but was not completed until December 1957, because of delay in steel delivery.

City forces then removed the falsework, took out the remainder of the old bridge and pulled the piling after the erection of each span was complete. ***Photo 4*** shows the partially completed bridge. This work was done from the bridge by laying the new deck grating temporarily as the removal progressed so that a truck crane and trucks could work from the new bridge. ***Photo 5*** shows a section of the old floor girder being removed from the deck of the new bridge. Removal operations were also conducted from the barge in the river.

Flooring

The flooring specified was the 5-inch I Beam Lok open steel deck type and that accepted was the Greulich 4-way Grid open deck manufactured by Kerrigan Iron Works, Inc., of Nashville, Tenn. It was laid by City of Minneapolis crews.

Winter set in before it was pos-

sible to start laying the deck, so it was merely aligned and tacked down. By the time this was done the weather was warm enough to begin welding.

Other Works

Other portions of the project were under construction while the bridge itself was being built. This work consisted of:

1. Constructing a 79-foot overpass over the Soo Line Railroad consisting of concrete abutments, steel girders and concrete deck.
2. Constructing a 65-foot concrete girder and slab bridge approach.
3. Installing 950 feet of concrete crib wall, laid up to 28 feet in height as a retaining wall for the approach fill.
4. Building auxiliary roads to provide access to business establishments cut off by the raised bridge approach.

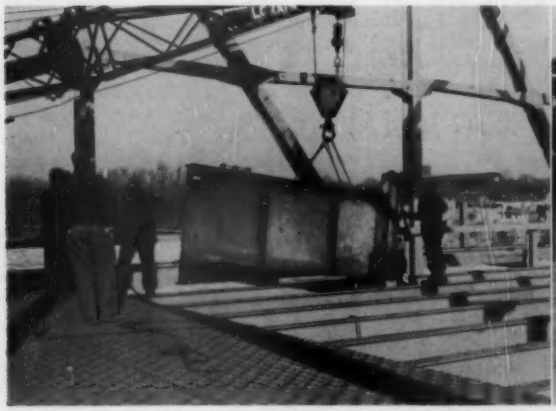
We opened the bridge to traffic on July 1, 1958.

Construction of the new bridge began in 1956 and was completed on July 1, 1958. The total cost came to approximately $2,500,000: $1 million for the bridge, $1 million for the approaches, and the balance for access roads, utilities and damages. It was financed as part of the Harbor Project for which funds had been set aside at the rate of $300,000 per year, started by action of the City Council in 1942.

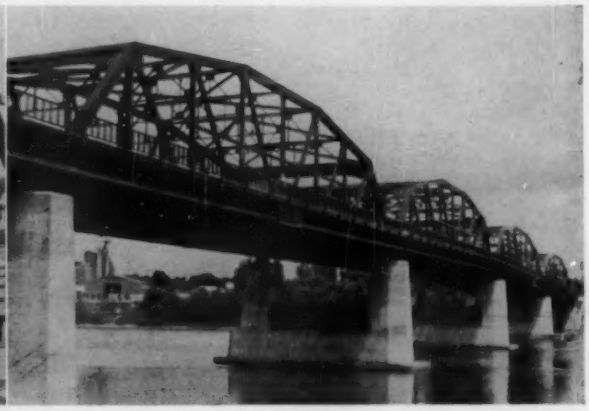
The Bridge Division of the City of Minneapolis, headed by Eric Gorgenson, bridge engineer, designed the project and supervised construction. The over-all project was carried out under the direction of the City of Minneapolis Engineers' Department and Hugo G. Erickson, city engineer.

3. . . . they next remove the old trusses, provide additional falsework for the new, wider bridge . . .

4. . . . and call a contractor to erect the new trusses . . .



5. . . . while city crews use a Loraine crane to remove the old floor girders and place a new open-mesh flooring . . .



6. . . . and here is the finished bridge, strong enough for the heaviest trucks, and high enough to permit free passage of barge traffic.

Prisoner call-out procedure begins at the Wayne County Jail with a check of the Remington Rand visible index file containing information on every member of the jail population. Jailer checks the file, as shown here, and enters prisoner data on the "Out Sheet" which becomes authorization for release or transfer. Right, Sheriff Andrew C. Baird, who describes the values of the TelAutograph system in this article, is seen at Inspector's Office transceiver.

Electronic Longhand Aids Positive

By ANDREW C. BAIRD, *Sheriff*
Wayne County
Detroit, Mich.

POSITIVE control of prisoner movement is the objective of officials at every penal institution in the nation. Accuracy is essential at the moment when a prisoner is released from the institution's responsibility.

This crucial operation takes place more than 135 times a day at the Wayne County Jail. We release an average of 70 prisoners and transfer 68 others to a half dozen courts daily. Together with prisoner call outs for police interrogation and internal jail matters, these transactions represent an important phase of our control over a jail population, which ranges as high as 900 at a time and now averages more than 700.

During the release and transfer of prisoners, the two things we are aiming for are accuracy and speed. When a prisoner is to be released from custody, we must have the right man every time. And when a prisoner is summoned to stand trial, no court should be inconvenienced because of cumbersome procedures within a jail.

At the Wayne County Jail, the possibility of error in this type of operation has been minimized with a rapid-action prisoner call-out system based on instantaneous handwritten communications.

When a prisoner is summoned for any reason, we merely write a message giving the name, cell block number and destination of that prisoner. The message is transmitted instantaneously and exactly to the cell block. It also is received simultaneously at the jail's Receiving Department, which has the responsibility for making the final release of the prisoner. Because both cell block and the Receiving Department have an accurate written record of the request, there are no misunderstandings and delays, which can happen with verbal messages.

The Electronic Longhand system which we use to achieve foolproof prisoner movement functions over a network of TelAutograph telescribers on which messages are written and received. A background of some 70 years of experience in communications by the TelAutograph Corp., 8700 Bellanca Ave., Los Angeles 45, Calif., gives the system the dependability we demand in our kind of institution.

The key unit is a transceiver, which can send or receive messages, located in the Inspector's Office. The Jail Division Staff, which is under the direction of Inspector Robert Harbour, can summon a prisoner from any point in the jail by moving the proper switch on the transceiver's selector panel.

The Receiving Department also has a transceiver, which receives all messages sent, but can transmit

TelAutograph receiver records the message at the cell block in which prisoner is housed. Jailer's attention is called to the message by signal lights, at left of receiver.

Referring to TelAutograph message bearing correct prisoner's name jailer opens cell block door to summon the prisoner. In the meantime, Receiving Department also has received the written message and has dispatched a man to the cell block to bring him down. ➔

Prisoner Control

messages only back to the Inspector's Office. In each of the men's cell block on the second through sixth floors, and in the women's cell block which occupies part of the sixth floor, there is a receiver for incoming messages only.

The reasons for which a prisoner may be called out of his cell block with this TelAutograph network run the full range of the jailer's experience—trials or hearings, police questioning or identification, release on bond, payment of fine, expiration of term, etc. Whatever the reason, however, there must be an official authorization before the prisoner can be released or transferred.

This authorization is created at the outset of our call-out system. A request for prisoner movement first is checked through a Remington Rand master file listing all those in the jail population. The pertinent information about the prisoner is obtained from his file card and entered on an "Out Sheet" which

After accuracy of prisoner movement is assured, member of Receiving Department staff strikes prisoner's name from TelAutograph Board.

serves as the authorization to move him from his cell block.

In the Inspector's Office, the "Out Sheet" is used as the source document for writing the TelAutograph message which actually summons the prisoner. A staff member activates a receiver in the indicated cell block by moving a selector panel switch, and then writes the prisoner's name, cell block number and reason he is being called—"CT" for court; "Detroit" for city police purposes; "Time expired"; "Fine paid" "Surety bond," etc.

As this message is written, it is received in two locations—the cell block and the Receiving Department. We want to get the right man down as quickly as possible and several things get the process under way: In the cell block, a light mounted next to the receiver goes on when a message is received, attracting the jailer's attention. With the written TelAutograph message as reference, he is able to get the prisoner out of the block immediately.

Meanwhile, the Receiving Department has received the same message, and dispatches one of its members to the cell block to bring down the prisoner. As a check on the accuracy of the prisoner's movement, the Receiving Department then takes a print of the man's right index finger and compares it with his floor card.

Normally, this fingerprinting procedure would catch any prisoner movement error made at the cell block. However, there is a chance that if the wrong prisoner were removed from the cell block and sent down with his own floor card, the wrong person would be released from custody. The high degree of accuracy guaranteed with handwritten and instantaneous communications means that the possibility of this double slipup is negligible.

Vital to this accuracy is the accurate presentation of the prisoner's name to the cell block in the first place. And that is where our TelAutograph system rings the bell. For the person in charge of the cell block has the name in front of him as a permanent record at all times.

On the telephone, there is always the chance that a mispronunciation or misunderstanding will open the way to the error we are trying so hard to avoid. That chance is eliminated when the message is transmitted instantaneously on paper.

Time is a factor, too, as we have noted. If we used a telephone system, two calls would be necessary for every prisoner release—one to the cell block floor, another to Receiving. It certainly is reasonable to assume that the procedure would be delayed some of the time because the phone would be busy or because no one would be available to answer it at the moment it rings.

As a matter of fact, the last circumstance does occur in our existing telephone system, and our telescriber network has helped to combat it. When Inspector Harbour or a member of his staff wishes to talk with someone in the jail on the phone, that person occasionally is not available at the moment. Instead of continuing to try to reach the party on the phone, our office staff now is able to leave a TelAutograph message at any cell block, requesting the person to call back at the earliest possible moment. Like the over-all prisoner call-out system, this has been a valuable timesaver in our daily operation.

With continuing growth of the Wayne County jail's population, it is our feeling that the swift and sure system made possible by our telescriber network is important on two fronts: It makes day-to-day operations smoother by turning what could be a troublesome jail function into a routine procedure. And, it provides the kind of operating efficiency our taxpayers have a right to expect.

Star-Shaped Roof for Outdoor Theater

OAKLAND, Calif. Recreation Department is building several children's theaters for free performances for and by young people. Children now give and enjoy dramatic performances at the department's new Arroyo Viejo Children's Theatre with a star-shaped roof.

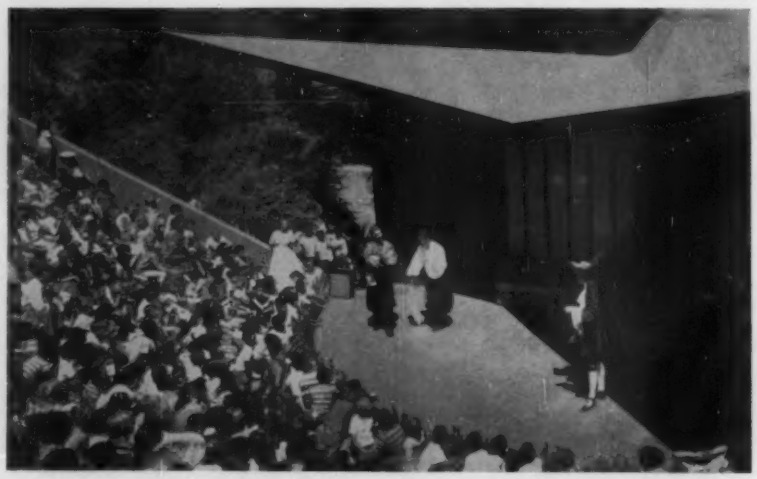
It was built on the site of an existing amphitheater. Architect Irwin Luckman preserved the park-like setting, sacrificed very few tree limbs, and surmounted the obstacle of a running creek that divided the stage with a 16½-foot gap by bridging it with spaced decking so rains could run through.

The roof is bilaterally symmetrical in the form of a four-pointed star. Each of the four points of the star was made of two airplane-winglike sections, with fir plywood top and bottom "skins," fabricated by Berkeley Plywood Company. The sections were trucked to the site and hoisted into place with a 150-foot boom. Steel pipe columns give support independent of the walls.

A rotating backdrop extending across the stage has six pylons on either side. They are equilateral triangles in cross-section, with each side of the triangle an 18-inch-wide panel of fir plywood. Scenery can be mounted on the panels.

On each side of the building, diamond-shaped planter boxes of fir plywood are cantilevered out over the creek to repeat the form of the roof. Sectional, movable plywood steps rest at the bottom of the stage.

The theater cost $10,700, of which $3,000 was donated by the East Oakland Rotary Club.



Performers capture the attention and stimulate the imagination of this audience.

The trapezoidal shape of Sunnyvale's pool is of help in races such as this.

A City-School Swim Center

By H. K. HUNTER
City Manager
Sunnyvale, Calif.

SUNNYVALE has a Swim Center designed to meet recreational, instructional and competitive swimming for the general public and the physical educational classes in the public school. This represents a $150,000 investment, approved by vote, for Sunnyvale's 41,785 citizens.

The pool immediately becomes distinctive by its unusual trapezoidal shape. Since most of the public will be using the shallow end, Architect L. E. Richards tapered the 100-foot long pool from 42 feet wide at the deep end to 80 feet at the shallow. Most estimates show that there will be five times as many swimmers as divers, and twice as many nonswimmers as swimmers. Thus, the wedge shape functionally fits to these needs. The diving end is 10½ feet deep; the shallow end is 2¾ feet deep to accommodate youngsters of five years and more.

Aid to Competition

While the pool was not designed primarily for competition, nevertheless, it is excellently fitted for this purpose. The wedge shape is especially suitable, since the two outside swimming lanes are less of a handicap than they are in rectangular pools. Most swimmers find that the outside lanes near the wall are slower.

We supplied the pool with American Playground diving standards of one-meter and three-meter heights. The standards provide a rocker-type fulcrum. The boards are of aluminum, designed to eliminate any twisting action at the tip of the board, thus adding a safety factor not generally found in other boards. The special, nonskid tread is full 18 inches wide.

Deck Area

We have provided 6,074 square feet of deck area around the pool, roughly equal to the water surface area. Four underwater lights in the deep end of the pool each have 1,800 watts and provide a means of lighting the dark underwater areas at night for added safety. The deck areas contain lamp black to cut down sun glare and reflection. The areas also have heating coils in them to provide comfort on cool days. Tropical and water plants provide a pleasing and relaxing effect for the swimmers.

We can recirculate the water completely in an 8-hour period, and have provided heating coils in the floor of the pool to warm the water to a maximum temperature of 85° F. To insure continuous purity, we maintain a chlorine residual of from 0.3 to 0.6 of a part per million, using a Wallace & Tiernan chlorinator. To keep the water clear and sparkling, we have installed a Bowser diatomaceous earth filter, which removes the impurities prior to chlorination and reduces the amount of chlorine required. The filter we are using requires 40,000 fewer gallons of water per week for backwashing, as compared with the conventional rapid sand filters, and does not require the use of alum for coagulation which has the added difficulty of creating some eye irritation.

The pool house contains radiant-heated decks, showers with nonscald fixtures, and bags and baskets. An instruction office contains all needed first-aid and safety equipment. Large dressing rooms, rest rooms and showers are also housed in the pool building.

We provide seating for 400 spectators with a Pittsburgh-Des Moines all-steel grandstand. The grandstand provides ample room for storage, a concession stand, open pool, patrons and an outside window to serve nearby picnic areas.

Contract

While the city enjoys a very fine relationship with the school district, we still have had to revise the contract with the district because of its lack of operating funds. We are presently working on a new contract which will make the Swim Center available to the district free of charge.

A view of the ash tunnel showing truck and one of the large metal containers used to haul away ash.

Bridgeport Incinerator Utilizes

THE Bostwick Avenue Incineration Plant, Bridgeport's (Conn.) latest contribution to better refuse disposal, went into operation in April 1958. Since then it has operated at an average 90% rating five days weekly, and generally exceeds the 300-ton rated capacity on Mondays and Tuesdays.

The above figures seem to indicate that the plant was underdesigned, but such is not the case. The new plant supplements an old floor-stoked unit of 150-ton capacity located on the opposite side of the city. Present plans call for the modernization of this unit, and until such time the new plant takes all burnable material collected within the city. When the program is complete, the modernized plant will handle about

The large steel plate on one side of each charging hopper permits easier dumping with little or no spillage and covers large ventillating louvres below. Note water sprays on bin wall for dust control.

Three pumps, two of which can be seen, pump sewage plant effluent into large tank at right. This effluent water is used for all process work where potable water is not required. Machinery at left operates the elevator.

Hydraulic dumping grates with exterior cylinders (foreground, right) reduce labor to a minimum. Each furnace contains eight such grates.

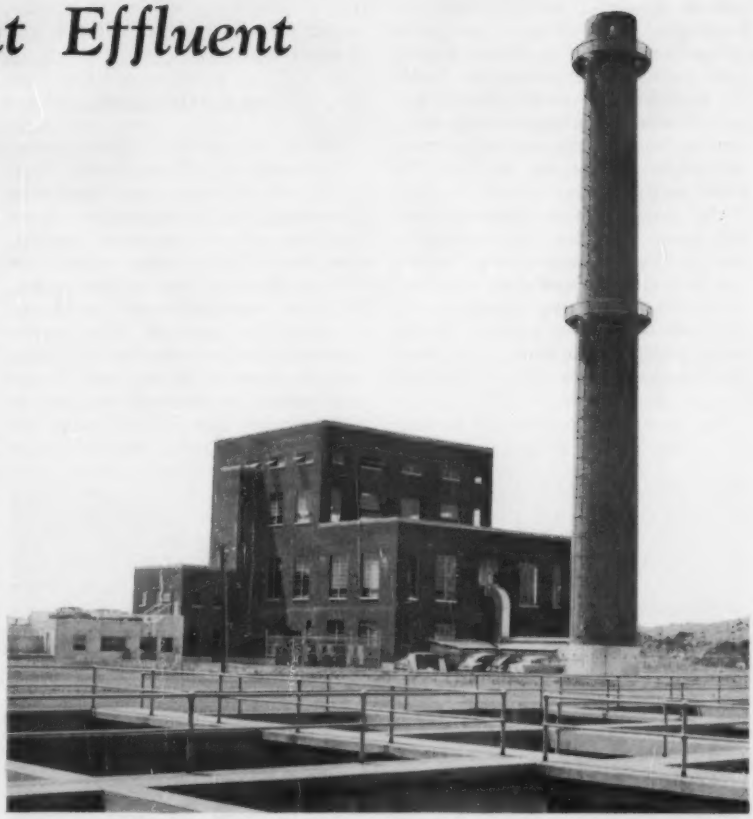
Sewage Plant Effluent

one-third of the material with the new plant handling the balance. As an additional precaution, specifications called for a 25% overload factor in the design, and during a three-day test period the units performed well at 29% overload.

Special Features

In many respects this plant is similar to others of recent design, but it also contains several new and possibly unique features. One of these is the use of sewage treatment plant effluent for residue quenching, fly ash control, and other plant uses not requiring potable water.

Effluent from the sewage treatment plant passes through screens and enters the plant through a 12-inch header. Two 350-gpm and one 150-gpm DeLaval centrifugal pumps take suction from the header and discharge into the large pneumatic tank that feeds the effluent water system. The Nichols Wetscrub fly ash control system consists of water-sprayed, stainless-steel, vertical baffles in a spray chamber having about 20 cubic feet of volume per rated



Bridgeport's new incinerator. Proximity to the sewage treatment plant (foreground) permits use of sewage effluent for fly ash control. Stack is 165 feet high.

All water from the fly ash control system passes over a weir into a receiving tank (left) and is then pumped to a settling pond by an automatically controlled variable-speed pump (lower right).

ton. The sloping floor is covered with water and equipped with jets. The fly ash baffle sprays operate from a constant head storage tank on the charging floor. The floor jets operate directly from the 60-psi effluent water system. An automatically controlled, variable-speed pump transfers the water and fly ash mixture to a settling pond outside the building. Overflow from the pond discharges into Long Island Sound.

A main air duct across the building is dampered so that combustion air, whether natural or forced draft, can be taken from outdoors, from the upper storage bin or from the lower ash room as desired.

The extra large, double-leaf charging gates, providing an opening 4 feet by 8 feet in size, eliminate arching in the charging hopper and also allow relatively large items to be charged without difficulty. Beaumont Birch supplied the motor-operated charging gates and manual ash-hopper gates.

The plant has an elevator serving three floor levels. It is of the freight type with a capacity of 4,000 pounds and was installed by the General Elevator Company of Hartford.

Twin Furnaces

The plant contains two Nichols Monohearth cylindrical, mechanically stoked furnaces. Each has a capacity of 150 tons per 24 hours and an inside diameter of slightly over 15 feet. Large, hydraulically operated dumping grates, located on the outer edge of the circular burning area, greatly simplify ash discharge to the water-quenching hopper. A Vickers hydraulic system supplies power to operate these grates.

Large doors in the base of the cylindrical combustion chambers permit easy disposal of dead animals.

Each furnace has a grate area of 180 square feet, or a burning rate of 69.5 pounds per square foot per hour. The furnace volume equals 1,800 cubic feet and the volume of the combustion chamber per unit amounts to 16.2 cubic feet per ton of rated capacity.

Normal Operation

Operation is similar to that of most bin-and-crane-type incinerators. Four trucks can discharge their load into the storage bin simultaneously, three from the side and one from the end. One 4-ton P & H bridge crane with a 2½-cubic-yard Blaw-Knox bucket transfers material from the bin to the charging hoppers. The water-quenched ash is dumped into 8-cubic-yard Dempster-Dumpster containers and hauled to the adjacent dump. All incoming material and ashes are weighed by a Howe Mechanoprint scale and records kept of each day's operations.

Equipment includes an Erie City waste-heat boiler—equipped to use oil fuel, Minneapolis-Honeywell (Brown Instrument) temperature and draft gauges, General Electric controls, a communication system, and motor-operated, refractory-type dampers.

Operating temperatures are kept between 1,400°F. and 1,800° F. with a warning alarm sounding when the temperatures exceed 1,800° F. Cooling is achieved by overfire air fans.

At present the plant operates three shifts a day, five days per week. The bin portion is also open on Saturdays to accommodate private collectors. Each shift comprises four stokers, one charge man, an ash-tunnel man, one truck driver for ash removal and a labor foreman. The total crew, including the superintendent, numbers 32 men. When the old incinerator is put back into service both plants will probably drop down to two-shift operation.

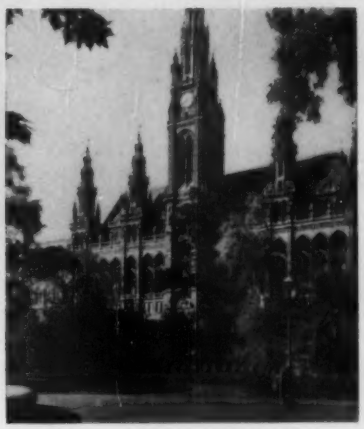
City forces collect garbage and rubbish from residences only, making one rubbish and two garbage collections per week from each house. The collection fleet consists chiefly of Roto-Pac and Leach packer-type units, but several older-type bodies are still in use. Funds for this work come from the general budget.

Private collectors service commercial houses and industry. They must have a license, but are not charged for disposal privileges at the incinerator or dump.

H. K. Gatley, consulting engineer for Bridgeport, designed the plant and supervised construction. Harry Maring, Jr., Inc., had the general construction contract, and Nichols Engineering and Research Corporation supplied the incineration equipment. Total cost of the plant, including roads, paving and considerable dump fencing, but excluding engineering and legal fees came to approximately $1,170,000. Over-all operation is under the direction of Richard H. Shannon, director of Public Works. Mathew LaRiccia is plant superintendent. Construction was completed and the plant put into operation under the administration of Mayor Samuel J. Tedesco.

European City Halls Spotlight Culture and Character of the Community

Flags fly, fountains flow, flowers bloom at Oslo's City Hall



Vienna's Rathaus has an inviting lawn.

IN many European cities, the local government maintains and actively promotes the idea of city hall as the symbol of the city. Public attention is focused on the city hall in a variety of ways.

Oslo's City Hall Tour acquaints thousands of Oslo citizens, Norwegians, and tourists from over the world with the municipal government. Completed in 1950, this spectacular building incorporates the work of Norway's finest contemporary artists. The building was designed to represent, specifically, the culture, society, government, and history of Norway and its 900-year-old capital city. Tours are conducted hourly in the summer and at less frequent intervals in other seasons.

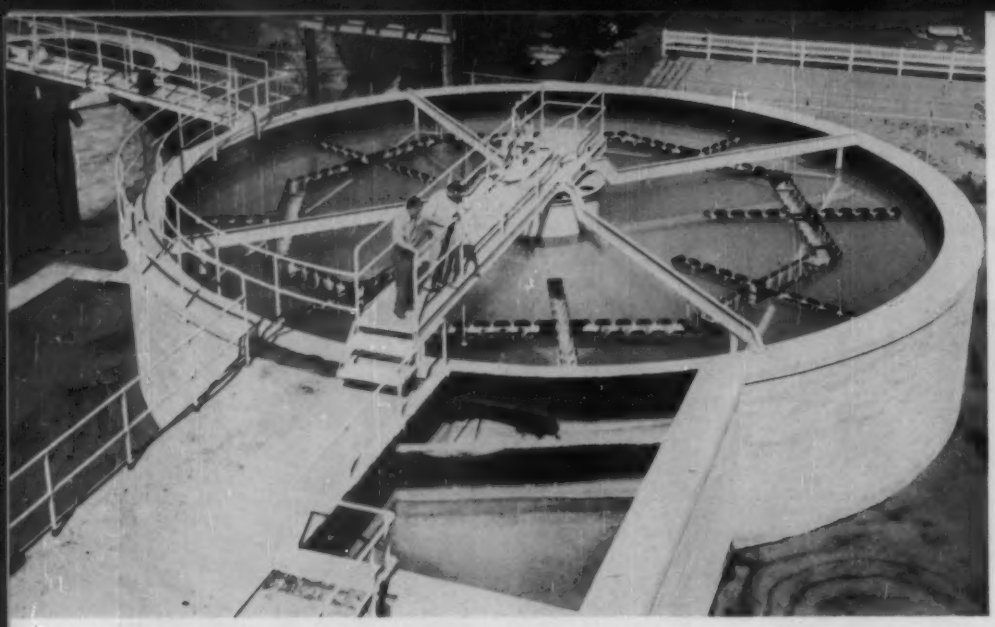
Hamburg's Guest Book contains the names of heroes, kings, and other honored guests. Kept at city hall in a special reception room, the jewel-encrusted book is a registry for official guests of the city. There is something about signing one's name in such a book that is friendly and flattering. And, for the city which so honors its official guests, the book becomes an interesting and treasured document.

Vienna's City Hall Concerts attract 2,500 persons a performance to the inner courtyard of the Rathaus. Featuring the Vienna Symphony and other local musical groups, the concerts provide good music for Viennese and visitors at a time when the regular concert halls are closed. City hall courtyard is decked with flags for the performances. Folding chairs are set up. There are no reserved seats. The cost is 14 shillings — 28c — sufficiently inexpensive for nearly anyone. Vienna officials say that the concerts serve a political as well as a musical cause. This utilization of the handsome city hall is an effective link between people and their city government.

Flags and Flowers are effective decoration for the municipal buildings in smaller towns and villages of Germany, France, and Italy. The formula is: paint and cleanliness, meticulously cared-for lawns, patterned flower beds (often with the city seal set in plants), and colorful flags around the building proper or lining the walkways. City halls spotlighted in this manner are a focal point for local people and visitors.

Museums at City Hall bring people into the building, symbolize the character of the community, are inexpensive to maintain, and are an effective educational tool. In a number of European cities, such museums display: documents of municipal import (charters, record books, letters, other papers); items of historical interest (pens, gavels, seals of office, chairs, etc.); and maps, photographs and models depicting phases of city development and plans.

City history is the subject of fine art dedicating the main lobby of Oslo's city hall.



Left:
These three open tanks are used for softening (center), sludge storage (left) and recarbonation (foreground). Note the close proximity of residential property (rear).

Right:
The pump room contains both high service and wash water pumps and the electrical controls. The pump, driven by the gas engine (left), serves as a standby unit.

Beaver Dam's Water Department

New plant, new equipment and new methods team up to put top quality alongside of ample quantity and good service

By JOHN R. BIRCH
City Engineer
Beaver Dam, Wis.

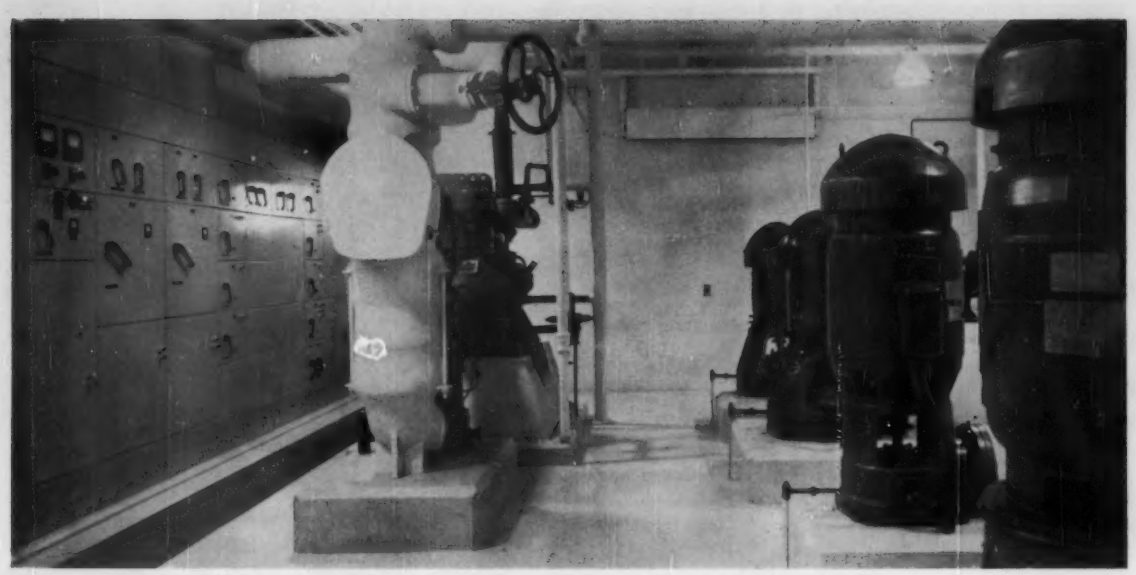
BEAVER DAM, Wis. has been blessed with an abundant supply of water—now its citizens can enjoy good quality water as well. Our new treatment plant, incorporating modern equipment and treatment methods, assures the delivery of iron-free, moderately soft water at adequate pressures throughout the year.

Three wells, all slightly over 500 feet deep, supply the water. One well located at the treatment plant, and another, located about ¼-mile away, pump water to the plant. A third well is connected directly to the distribution system, but is used only in cases of extreme emergency —during periods of heavy fire-fighting demands or temporary shutdown of the other wells.

Softening Process

The iron content in the raw water varies from 0.50 to 1.5 ppm and the hardness varies from 320 to 337 ppm. The finished product is free of iron and is moderately soft, having an average hardness of about 75 ppm.

Street entrance to Beaver Dam's new water treatment plant. All buildings and tanks have exteriors of buff colored brick with stone trim.

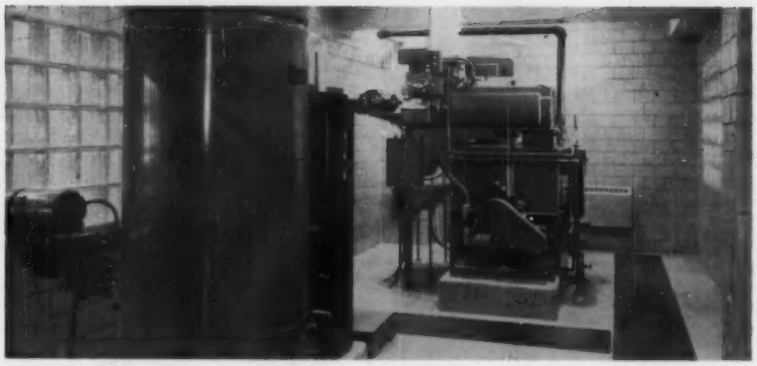


Meets the Challenge

Raw water is pumped to a tray aerator located in the old 175,000 gallon reservoir. This tank now serves as a settling basin wherein most of the iron is removed. The softening process takes place in a General Filter upflow-type clarifier. Here lime and aluminum sulfate are added to and mixed with the water to form a precipitate. Most of the precipitate settles to the tank bottom and is drawn off to a sludge storage tank at regular intervals. This is done automatically by means of a solenoid valve controlled by a time clock. The filters remove what little precipitate remains in the clarifier effluent.

A 20-inch Sparling main-line meter located between the settling tank and the clarifier measures the flow and also controls the chemical feed machine handling lime. The alum feeder is controlled manually.

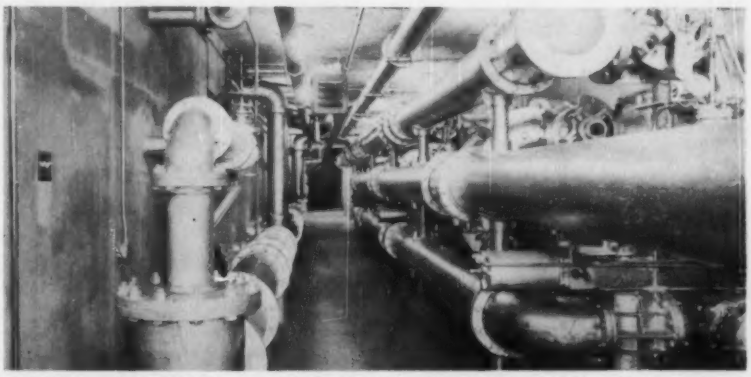
Recarbonation takes place in a tank adjacent to the clarifier, using carbon dioxide produced in a Walker Process "Carball" unit. Chlorine and fluoride are added between this tank and the filters.



Chemical feeder room showing alum feeder, chlorinator and lime feeder and slaker.

Filtration

The new plant contains three filters each having a daily capacity of 1.0 mg. Equipment includes General Filter P.O.C. controls, Palmer sur-



The filter gallery reaches from the front of the filter building to the clarifier located in the rear. Note the use of plug valves on the filter piping (right).

Meter repairs and maintenance, an important phase of operation, are conducted in this fully equipped, well-lighted meter shop.

face-wash units, and DeZurik plug valves on the surface-wash lines, wash-water lines, and the filter influent and effluent lines.

All filters as well as the two well pumps are controlled from a single console in the filter gallery. The meter panel, located on the wall adjacent to the filter console, contains instruments for measuring depths and pressures in the clearwell, wash-water storage tank and elevated storage tank and also raw water flow and plant effluent.

The filter effluent flows to a 500,000-gallon clearwell located underneath the pump-room portion of the plant.

Filter Wash Equipment

Filter wash equipment consists of two 2,500-gpm Layne pumps for backwashing, one Peerless pump to supply water to the surface-wash units, and a 400-gpm Aurora wash-water return pump. As the filters are washed, the waste water flows to a 76,000-gallon underground reservoir. After settling the sludge drains to a large city sewer, after which the clear water is pumped back to the filters. Thus, very little water is actually wasted during the filter washing process.

A similar saving takes place in connection with the clarifier sludge. As previously mentioned, the sludge is periodically drawn off and stored in a sludge storage tank. Continual settling takes place, and daily the clear water is decanted and pumped back to the clarifier and the sludge dewatered in a Bird centrifuge located on the second floor of the centrifuge building. A Marlow Simplex sludge pump transfers the sludge from the storage tank to the centrifuge. The centrifuged sludge, having a consistency similar to that of toothpaste, drops into a dump truck and is hauled away for disposal. This dewatering process reduces the sludge moisture content from 98% to about 35%.

Our three high service pumps, all Layne units, are of the vertical turbine type. Two are driven by Allis-Chalmers electric motors and are rated at 1.5 mgd and 2.0 mgd. A second 1.5-mgd pump is driven by a Waukesha engine using natural gas as fuel.

These pumps are automatically controlled by the water level in a 400,000 gallon Pittsburgh-Des Moines elevated tank erected in 1930. The tank measuring devices consist of a Builders-Providence, Division of B-I-F Industries telemetering system and a Foxboro pressure recorder. The high service pumps automatically shut off when the water level in the clearwell drops to the 2-foot level.

Additional Features

In addition to the facilities described, the plant contains a modern meter repair shop, a combined office and laboratory, a chemical feeder room, and a completely enclosed chemical unloading bay. Chemicals, delivered in bags, are taken directly from the truck to a service elevator for transport to the third floor storage room. The chemical feeder hoppers are loaded from this floor.

We have one feeder each for lime, alum, chlorine and fluoride, all Wallace & Tiernan units. An Infilco lime slaker operates in connection with the lime feeder.

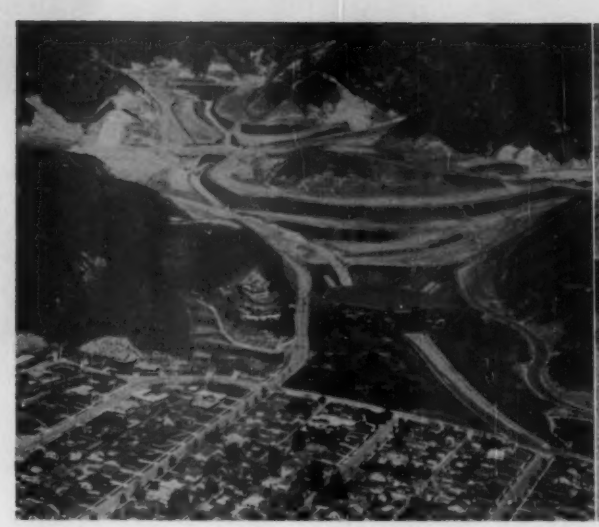
Besides measuring raw water, we also record plant output and filter wash water, using two 14-inch Sparling main-line meters. Another instrument worthy of mention is an automatic alarm that sounds when the fire alarm goes off. This notifies the operator that unusual demands may be forthcoming and he can plan accordingly.

Beaver Dam presently has a population of approximately 13,000 persons. As of December 31, 1957 we had 40.5 miles of mains and 4,105 metered customers. Daily water use ranges from a minimum of 860,000 gallons to a maximum of 1,700,000 gallons. Thus, our plant, with its nominal 3.0 mgd capacity, can handle all demands for some time to come. We do not expect to exceed 3.0 mgd until about 1980. The existing wells have a daily potential of 5.0 mgd. Operating hours to date have varied from 5 to 15 per day and the facility is manned from 6:00 a.m. to midnight. To date this 18-hour schedule has worked out very well for us.

Good Neighbors

The plant is located at the edge of a relatively new residential neighborhood with homes located adjacent to the rear and one side of the plant. However, the pleasing architecture of the plant buildings and tanks and the landscaped grounds blend well with the homes. To date we have received no complaints, and are confident that the excellent neighborly relationship will continue.

The new plant was constructed at a total cost of about $535,000, of which $520,000 was financed through a general obligation bond issue. Jerry Donohue Engineering Co. of Sheboygan, Wis. designed the plant and supervised construction, and Immel Construction Company of Fond du Lac held the general contract. The J. J. Neuman Company of Beaver Dam furnished and installed all the mechanical equipment and did the piping and heating. Mayr Electric Company of Sheboygan handled all electrical work. James B. Clow and Sons of Chicago supplied the pipe and fittings. The work was done under the administration of Mayor Alvin J. Beers. John Italiano is superintendent of the Water Department and Ray Thiel is the chief operator of the filtration plant.



Burbank carves its DeBell golf course out of the Verdugo Mountains. Note the flood control reservoir in the foreground.

The ditcher illustrates the difficult up-and-down operation that the work presented at this unusual site.

Burbank's Mountainside Golf Course

By H. R. BENNETT
City Manager
Burbank, Calif.

ONE of the most unusual municipal golf courses in America went into operation this fall in Burbank, Calif.

Located in the foothills of the Verdugo Mountains and overlooking the entire San Fernando Valley, the new DeBell Golf Course will combine beauty and scenic grandeur with a rugged layout calculated to test the precision shooting of the experts.

The course, covering 100 acres of raw mountain and valley land donated by Joseph A. DeBell, was literally sliced and carved into existence by huge bulldozers and earth-moving equipment which rearranged more than 3,000,000 cubic yards of dirt and rock in the process.

It occupies the center of a 1,007-acre tract being developed by the city into a multipurpose recreational area at a cost of about $2,500,000.

Already in use is the Starlight Theatre, a smaller-scale facsimile of the famed Hollywood Bowl and home of the nationally noted Burbank Symphony Orchestra.

Additional developments include camps, hiking and bridle trails, picnic grounds, baseball and softball fields, tennis courts and other play facilities.

The golf course extends into portions of two canyons and provides numerous natural and manmade hazards. Several of the fairways are of the dog-leg variety, and there is a 350-foot change in elevation from the low point to the high point on the course, resulting in up or down grades on virtually every hole, although no grade is over 8%.

Seeding of the greens and fairways began in July with opening of the first nine for play scheduled to take place late in October. The second nine will be ready for play a few weeks later.

Unquestionably scenic, the course will overlook the entire City of Burbank and much of the San Fernando Valley.

The problems of construction, particularly as they touched upon the installation of a course-wide underground sprinkling system, were complicated by buried granite boulders which have washed down from the virtually solid granite canyon walls. These canyons have in the past been the source of many flash floods and will be controlled by the construction of three debris basins.

In addition to the hazards of the boulders, the entire floor of the canyon areas is composed of decomposed granite, overlaid with top soil and supported by several criss-cross strata of conglomerate granite. So tough is this sub-soil condition that one of the world's largest tractors, equipped with a two-tooth ripper simply had to "give up and go home" in several spots.

Consequently, contractors view with some apprehension a contract for 18,000 feet of trench ranging from 36 inches to 48 inches and 145,000 feet of trench 18 inches and 24 inches deep. These trenches are required for the installation of 6-inch and 8-inch Johns-Manville Transite Irrigation Pipe.

Low bidder out of eight contractors was the Hammer Company, Inc., Santa Monica, Calif., landscape specialists.

To provide the mechanical means of doing the job, the Hammer Company obtained a new Barber-Greene Model 774, wheel-type ditcher. During the first three days of digging, the new ditcher cut 7,200 feet of 40-inch deep trench along the floor of one canyon in spite of the fact that this was one of the rock-infested areas.

The sprinkler system is an automatic one and will be controlled by a Moody time clock mechanism. Following the opening of the course a modern clubhouse will be the next to be studied. The entire operation is part of a ten-year capital improvement program.

The spacious city council chamber in Harper Woods' Municipal Building provides plenty of room for citizen-spectators.

Concerted citizen action enables Harper Woods, Mich. to build . . .

A Civic Center That Has Dash, Dignity and Drive

By ROBERT J. McNUTT
City Manager
Harper Woods, Mich.

HARPER WOODS, Mich., exemplifies a community whose citizens, through group discussion and activity, have been completely sold on the needs of their municipality and have spark-plugged to meet these needs.

The problem that the city faced was to gain public support for the construction of adequate municipal facilities and to enlarge the administrative and operational capacity of all the city's governmental services.

The city, located within Detroit's expanding metropolitan area and semirural at the end of World War II, found itself with a growing industry and an "explosive" expansion of population. As a result, the public demand for services was overwhelming and the facilities for supplying these services were inadequate.

Specifically, the city government proposed to erect a civic building for the city administration, the police and fire departments and other city facilities. The over-all program was large both in size and in scope, embracing a $500,000 municipal building bond issue. When this came to a vote, it received an overwhelming 4,599-to-1,706 citizen endorsement.

Harper Woods city officials asked for and received the active participation of all citizen organizations. However, they were aware that if reliance was to be placed on the public for policy determination and acceptance, the program would essentially require a wide and intelligent interest on the part of its citizens. This interest was aroused through the active participation of the 40 known organizations in the city representing 45% of the city's population in active membership, and subsequently reaching approximately 80% through one means of communication or another.

Each civic group and organization appointed representatives to a commonly created Civic Center Committee to obtain information regarding the community project. City officials submitted the accumulated facts and figures to the committee for review and evaluation. Architects, planning consultants, department heads, financial advisors and a public relations director were present at all committee meetings to explain the technical problems involved. City officials arranged a sightseeing tour through nine other newly constructed municipal facilities in the Detroit area. Thus, by visiting the facilities of other cities, the committee was able to evaluate more accurately the proposed plans.

Further, the city department heads were given the opportunity of submitting their plan for space and facilities of their respective departments to the committees for discussion.

These committee representatives collected the facts and brought them back to their own respective civic organizations. In this way every individual in each group became an effective and intelligent participant in decisions relating to the proposed municipal project. They found where their money was going, how much was to be spent and what they would receive in turn.

Anticipates Future Needs

In its construction and design, the modern U-shaped civic center that grew out of this concerted action can accommodate municipal needs of the future. It houses the city administration offices, and the police and fire departments. In addition, the building includes a council chamber, which is also used as a court room, with a seating capacity for 154 people in permanent, foam-cushioned, theatre-type seats. A conference room with a 12-foot walnut conference table leads directly off the council chamber.

The police department, situated

between the administration offices and the fire department, has a private rear entrance, so that apprehended citizens may be finger-printed, jailed or counseled within the department itself. Private office space is also provided for the police chief, captain and all detectives in order that juvenile and adult counseling may be effectively and privately conducted.

A jail, accessible from the rear of the building and consisting of a large bull pen, two separate cell blocks for males and females, is located some distance from other departments. In addition, the police facilities include a dark room, a crime laboratory, a 75-foot pistol range, a large squad room, and shower and locker space—all provided to raise the standard of police performance.

The design of the fire department assures prompt and efficient exit of the fire staff upon receipt of a fire call. The new structure is equipped with two outlets on the north side and three on the east side of the building. The dormitory, classroom, kitchen, dining room and locker and shower facilities were planned by the designers to expedite response to fire alarms.

Communications Room

One of the outstanding features of the Municipal Building is the communications room. Located in the center of the building and reasonably protected in the event of disaster, the room contains the central switchboard for the police, fire and city hall offices. The switchboards are manned 24 hours a day. During the hours that the city offices are closed, an automatic answer device is used to inform the general public to call the police or fire department in case of an emergency.

The communications room operates two Motorola radio systems—the police and fire department network with two-way radios installed in police patrol cars and fire engines; and the local government network with two-way radios installed in public works and administrative vehicles. Also, the communications room has KLA Laboratories listening equipment for monitoring conversation in the cell blocks. Further, teletype through the Wayne County teletype system, provides communication with police departments throughout the United States and the world.

All of the alarm systems, such as fire alarms, burglar alarms and security alarm systems are located in a panel on the rear wall of this communications room. Provision is made for the future monitoring of expressway traffic by closed circuit television.

In an effort to encourage the active and continual participation of citizen groups and organizations, the building is equipped with a spacious meeting area. The room is also used to administer physical examinations and inoculations by the Wayne County Health Department. The Harper Woods Health Guild will also have access to this room.

The boiler room is located in the basement and is equipped with a gas-fired Orr boiler which produces steam for winter air conditioning and heating units and hot water for radiant heat. A Worthington refrigeration unit of 25-ton capacity with Minneapolis-Honeywell controls provides summer air conditioning.

Thus, the designers of the building not only looked to the future when considering space requirements but also have provided the most modern equipment to achieve the maximum standards in municipal performance.

The Municipal Building in Harper Woods reflects the willingness of citizens to share the responsibility of community progress with their local government. Employing their right of participation in all public matters, citizen interest is currently centered on the development of a community civic center, complete with a library, swimming pool and community building—a project which will undoubtedly become a reality in the near future.

Mayor Joseph P. Grossel (left) extends his congratulations to City Manager Robert J. McNutt in front of the new building.

Heavy rains did this to many streets requiring a crash repair program . . .

. . . with some new construction

We Rainproof Our Streets

Arid San Antonio upgrades its street system after a drought-breaking rainfall discloses drainage and surfacing weaknesses .

By SAM GRANATA, JR.
Director of Public Works
San Antonio, Texas

AFTER a drought of seven years, heavy rains beginning in the spring of 1957 and continuing periodically ever since, pointed up the fact that our network of asphalt streets grew over the years without correlation to any major drainage plans. Because of the lack of adequate drainage facilities, many streets served as drains in lieu of storm sewers. When these heavy rains fell they developed swift currents and eroded the asphalt along the gutters badly.

Lying in the valley of the San Antonio River, San Antonio is located in the path of natural drainage from the hills on the north and west to the flat terrain on the south. The fact that our major residential growth has been to the north further complicates the problem. The related increase in paved areas considerably increases the runoff of storm water through San Antonio streets.

Street department and contract crews seal coated almost 3,000,000 square yards of street surface during the 1958 season.

changing this narrow lane . . . . . into a broad, smooth, well-paved street.

Few, if any, of our old streets were designed to carry this storm water, nor were the streets laid in new subdivisions built to adequate specifications, thereby doubling maintenance requirements. To aid in solving these problems, we are doing two things: providing adequate storm drainage in all sections of the city; and patching, seal-coating and reconditioning a number of paved streets.

When the receding storm waters left streets almost completely washed out or full of chuckholes, the city immediately embarked on a crash program of asphalt patching and repair. To preserve streets left in good condition, we launched an extensive seal-coating program. Streets beyond help from seal-coating are being reconditioned. The city uses approximately 100 tons of asphaltic concrete each day for patching, plus another 100 tons for leveling serious depressions ahead of seal-coating.

Seal-Coating

Patching and leveling is standard procedure preliminary to seal-coating to eliminate poor gutter lines and major irregularities in the street surface and maintain drainage. This consists of brooming and cleaning the low areas and in some cases using motor graders to blade off high bumps. These areas are then primed with RC-2 cutback asphalt and built up with an application of hot plant-mix, cold-lay, asphaltic concrete. The material is then rolled and allowed to stand, preferably several days, before seal-coating.

We make no attempt to level the entire section completely, except to provide for more adequate drainage.

We use Colas, an emulsified asphalt manufactured by the Shell Oil Company and meeting Texas Highway Department specifications, Item 350, Grade OA-175 and OA-135, to seal the cracks and protect the street from further deterioration due to rainfall. Normal application amounts to approximately 0.18 gallons per square yard. We use two types of asphalt distributors—the Littleford with a 1,500-gallon capacity and a Roscoe booster truck modified for use as a distributor.

Our crews apply cover stone at the rate of one cubic yard for each 80 square yards of surface, using a Grace spreader box. One type of stone used consists of a precoated natural limestone rock manufactured under Texas Highway Department specifications, Item 352, and mined near San Antonio. The other is a precoated crushed limestone meeting Texas Highway Department special specifications, 10-53-1858. Both are graded from ⅝-inch to a #10 mesh.

The cover stone is then packed into place by a Tampo pneumatic roller, broomed with a Grace drag, and compacted again with an Ingram 8- to 10-ton steel roller. Each 4,000 square yards of surfaced area requires approximately one hour of rolling time for each type of roller. We try to keep all but local traffic off newly surfaced streets for at least four hours to permit curing.

The normal seal-coat season of hot,

Reconstruction work consists of pulverizing the original base, adding new material and a stabilizing agent, compacting and surfacing.

Workmen apply the second and final surface course to a reconditioned street. Some 400,000 square yards of street surface were reconditioned last year.

dry weather in San Antonio is between May 1 and November 15. During that period in 1958 the city seal-coated by contract about 1,340,000 square yards plus another 1,500,000 square yards by city crews.

Although the city has used this method since 1933, many streets had never been seal-coated until this summer. Normally this should be done every five years.

Reconditioning

Streets too damaged to be restored by seal-coating are reconditioned. This consists of utilizing existing base materials, adding about 15% new base material, and stabilizing with lithium gangue, a lime byproduct available from the local plant of the American Lithium Chemical Company, Los Angeles. The lithium gangue lowers the plasticity index of the base material. The reconditioned base is then surfaced with a two-course asphalt penetration surface or 1 inch of hot-mix, cold-lay asphaltic concrete.

Reconditioning involves thoroughly scarifying the old paving with either our Galion 104 motor graders or mixers to pulverize the small amount of asphalt remaining together with the existing base material for a depth of not less than 6 inches. The material is then thoroughly broken down with sheep's-foot rollers and the supplemental base and stabilizing materials added. These materials are thoroughly worked by motor graders and are shaped, wetted and rolled to develop a complete base section having a Proctor density of from 90 to 95.

All this work is done by eye, since expediting the program makes it impossible to provide complete engineering plans for all of the many streets being improved. Except for drainage improvements, the reconditioned street sections agree with the original sections. The surface course as described above is applied after a two- to six-day curing period during which time only light traffic is allowed on the street.

This past year we reconditioned approximately 300,000 square yards of street by contract and 100,000 square yards by city crews.

All work is performed under the direction of City Manager Lynn Andrews, C. W. McKennon, Jr., street maintenance engineer, and the author.

City Sales Tax Brings Healthy Revenue

WHETHER ONE ADVOCATES the policy of municipal sales or not, everyone agrees that they bring in a lot of revenue. A study of municipal sales taxes, made by Professor David G. Davies, University of Cincinnati, shows that they have relieved the burden on the property tax by substantial amounts.

Those California cities that invoke a sales tax of ½% would have to increase the property tax rate by approximately 39% to equal the total revenue now received. The typical city using a 1% sales tax would have to increase the property tax by 67% to maintain the same revenue. The study covered sales tax collection from 1942 to 1953.

In California, during 1945-46, five cities using the tax obtained from it a little less than $1 million. Eight years later, 169 cities used the tax to collect slightly less than $50 million.

The typical California city with a ½% sales tax receives 24.2% of the total tax revenue from this source; the city with a 1% tax receives 34.2% of the total tax revenue from it. The average 1% city collects $5.25 from each resident per ½% of tax. Since adoption of the Uniform Sales Tax Law in 1956, most cities use a 1% tax rate, and revenues have increased as a result of this legislation.

On the basis of the available data, Professor Davies concludes that the typical taxing community in California spends less to collect the sales levy than do other cities that collect municipal income taxes.

The general trend seems toward increasing the sales tax levy. A total of 58 cities have increased the levy once; four, twice, all with virtually no opposition. Only four cities have decreased the rate, and in no case was the decrease permanent.

In 166 cities, all or part of the yield goes into the general fund. Five cities deposit it into a capital-outlay fund, and 33 cities earmark part of it for capital outlay and the balance for capital funds.

Professor Davies' discussion appeared in the *American Journal of Economics and Sociology*, October 1958.

Modern Water Rates PART I

WITH this issue THE AMERICAN CITY begins another of its water-rate analyses that have appeared periodically in this magazine over the past quarter of a century.

The current series takes on added significance today, since the nation seems committed to a policy of what might be called "creeping inflation." Water supply is an industry with a high investment in capitalized costs and with comparatively little that must be invested in labor. Consequently, the rates necessary to support it do not experience the same volatile changes that one sees in the price of groceries, haircuts, or other common living expenses.

In some areas, where the population has shown the explosive growth found around many of our large metropolitas areas, water rates have had to rise substantially to support the cost of new construction at today's prices. In other areas, where the population has remained stable, where the plant and distribution system built 25 to 40 years ago still provide the service necessary, rates have risen little, only enough to meet the increased costs of labor and supplies. Here and there, incredible as it may seem, one still finds rates in use that were established more than a quarter of a century ago.

Summaries Expanded

These rate summaries began under the editorial leadership of the late Theodore Reed Kendall, Engineering Editor of this magazine from 1920 to 1942. In keeping with the policies he established, we have attempted to enlarge the summaries to include the rates charged; fire protection charges where used; special charges for multiple dwellings where applicable; policies on service lines and water-main extensions; the size and type of supply and distribution system and billing methods.

We also make a sample calculation showing the cost of water in each system, based on delivery of 3,000, 5,000 and 10,000 gallons of water per month or triple that per quarter. Thus, in the smaller quantity ranges where the greater amount of water is sold, one has an opportunity to compare the actual cost of water purchased under the rates charged. Because of the variety of rate schedules, one has difficulty comparing rates used in various cities in any other way.

Other Factors Included

Accompanying these summaries of rates used in typical cities across the nation will be analyses of the various factors that go into the preparation of a water rate. We expect to discuss, for example, topics such as the reason for water meters; types of water meters; types of water rates; the number of blocks or steps that a water rate should use; what minimum charges represent and how they should be set; the reason for charging higher rates to users outside the city limits, and how much higher those rates should be; how to establish public and private fire protection charges; billing procedures; and nuisance charges. We will also attempt an analysis to show how high water rates should be to support a city's water system in a manner that will contribute to the best interests of the people served.

AMES, IOWA

Rates Per Month

Cubic Feet	*Per 100 Cubic Feet*
First 1,000	$ .50
Next 4,000	.46
Excess	.32

Minimum Monthly Charges

Meter Size (in inches)	*Charges*
⅝	$1.25
¾	1.50
1	2.50
1½	5.00
2	7.50

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges*
3,000	400	$2.00
5,000	667	3.34
10,000	1,333	6.83

General Data

Population served	24,000
Miles of main	62
Services (100% metered)	4,900
Supply—Wells	
Treatment—aeration for iron removal; lime and soda ash softening; rapid sand filtration; chlorination and fluoridation and phosphate stabilization	
plant capacity	3.2 mgd
Average demand	1.75 mgd

Remarks

1. The department provides no part of the service line.
2. The department provides no part of the cost of new mains—as of the spring of 1958.
3. Sewer services are operated jointly with water services, and its charges are billed and collected by the department.
4. In rendering the bills National Cash Register automatic billing equipment is used.
5. Water rates were last revised in September 1952 increasing the rates by 37%. The rate adjustment had a negligible effect on water use. No further revision of the water rate is needed at this time.

HARRIS F. SEIDEL
Director
Water and Sewage Treatment Dept.

BLYTHEVILLE, ARK.

Rates Per Month

Gallons		*Per 1,000 Gallons*
First	1,000	*Minimum*
Next	49,000	$ .40
"	150,000	.35
"	150,000	.30
"	195,000	.20
"	240,000	.16
Excess		.13

Minimum Monthly Charges

Meter Size (in inches)	*Charges (per month)*
⅝	$1.50
1	3.00
1¼	5.00
1½	7.50
2	10.00
2½	15.00
3	25.00
4	40.00
6	160.00

Rates for customers outside city limits, add increase of 50%

Fire Protection

	Charges (per year)
Municipal fire hydrants	$25
Private fire hydrants	40
Sprinkler Service—4 inches	40 per 1,000 heads; 5each additional head.
Sprinkler Service—6 inches	48 (with same qualifications)
Hose reels	7.50

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges*
3,000	400	$ 2.30
5,000	667	3.10
10,000	1,333	5.10

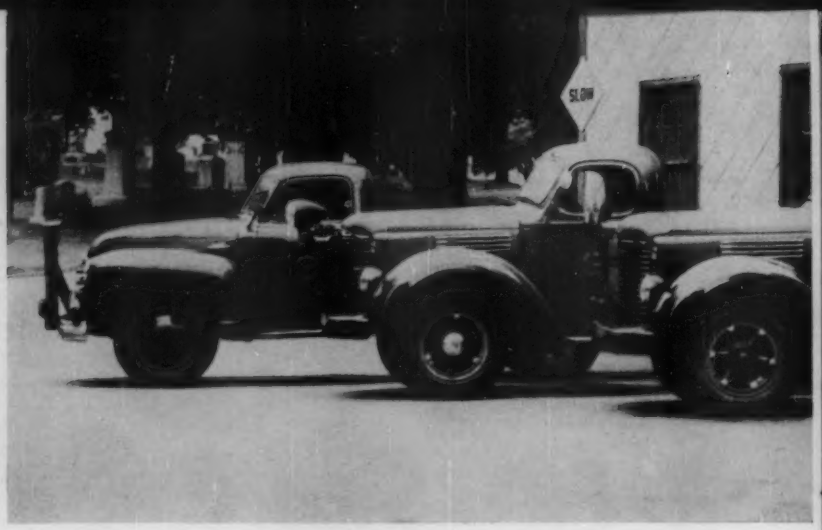
General Data

Population served		18,000
Miles of mains		60
Services	*Number*	*% Metered*
Domestic	4,308	100
Commercial	491	100
Other	89	100
Supply—Wells		
Treatment—aeration and iron removal		
Plant capacity		6 mgd
Average demand		2 mgd

Remarks

1. Utility provides service lines to property only. Substantially all the cost of installing new mains is borne by the company.
2. Blytheville Water Company is a privately owned and operated company. The city is charged 15c per 1,000 gallons of water per month, but is not subject to any meter minima.

(Continued on page 132)



This type of equipment keeps the Lynn Cemetery in neat, attractive shape.

What Cemetery Maintenance Means

By CLARENCE A. DOAK
Superintendent of Cemeteries
Lynn, Mass.

A WELL-RUN cemetery is an asset to any city or town only as long as its operation and maintenance remain businesslike. This important fact has been recognized by the Lynn City government. Mayor Thomas P. Costin, Jr. has appointed from among the cemetery lot owners outstanding business and professional men of the city to serve on the Board of Commissioners to see that the cemetery is kept in truly attractive, creditable condition.

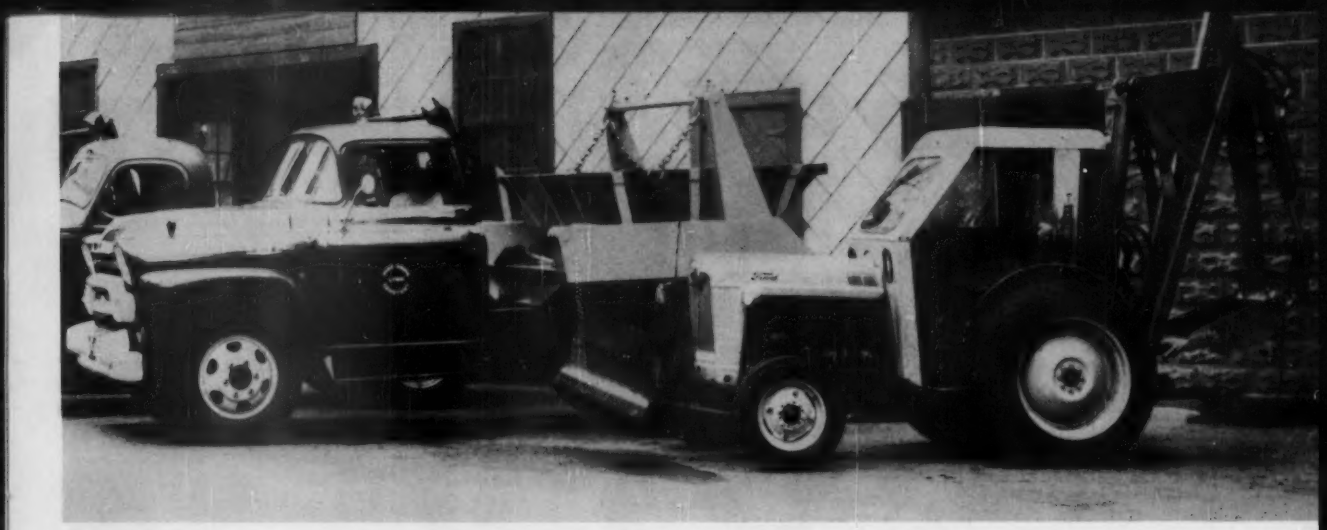
Almost a city unto itself, Pine Grove Cemetery is surrounded by a 7-foot stone wall with four wrought-iron gate entrances. It covers an area of 256 acres latticed with 8 miles of excellent pavement with concrete gutters and curbs. It includes a large receiving tomb and a beautiful Memorial Chapel.

The beautiful memorial chapel is a center of great interest.

Since 1850, the 60,000 interments to date include Civil War, Spanish-American War, World Wars I and II, and Korean war veterans. Free graves are furnished to veterans who are residents of the city. There are seven public lots and, in accordance with Massachusetts state law, graves have been furnished free to the residents of the city who in the early days did not wish to buy a lot. These free graves and veterans' lots are a direct cost to the city.

We give particular attention to landscaping — keeping the grass neatly cut and trimmed, cleaning gutters and picking up all unsightly refuse. We also maintain a greenhouse on the grounds, growing bedding plants for the several hundred endowment plantings on various lots in the cemetery and for many other beds throughout the cemetery. Our crew propagates many flowering shrubs and evergreens. We buy grass seed in separate varieties and mixtures for planting in different locations.

We schedule maintenance work somewhat differently than is the custom in many cemeteries. In the spring and fall, all hands work on the cleanup of leaves and debris. In the summer, we assign work to section men who care for designated areas. These men generally work in pairs except on a few small sections where one man works alone.



in Methods and Equipment

We also have organized a tree gang, consisting of a working foreman, climber and tree surgeon with two ground men. This group takes care of planting new trees and shrubs, taking out old trees and pruning and removing dead and broken branches. This crew also sprays trees, shrubs and grass areas for grub control treatment.

Time-Saving Equipment

Pine Grove is fortunate in having modern equipment. We put it to good use during our last four hurricanes, cleaning up and removing several hundred uprooted trees. Our mowing equipment consists of Locke Triplex mowers, Jacobsen reel and rotary mowers, Stanley electric trimmers, Whirlwind power-driven rotaries and Silent Yardman hand mowers (Craftsman No. 80) distributed by Sears-Roebuck.

We employ the Brooks load lugger with both open and closed buckets to remove excess gravel from interments. One truck with a hoist can handle many buckets, leaving one at each interment. This equipment has many other practical uses and is one of the most serviceable units that we have.

For opening graves we use a Ford Industrial Tractor with a Pippin Backhoe that can dig and load excess gravel directly into a Brooks load lugger bucket. To move the backhoe and load lugger into graves to be dug away from avenues and to save sod, we use sheets of ¾-inch plywood 8 feet long and 2 feet wide. These are placed so that the truck or tractor can drive over them without doing any damage to the sod. This procedure saves many hours of repairing damage done when the ground is soft.

All heavy trucks have extra heavy springs, two-speed rear axles and factory reinforced frames. At the present time our fleet consists of Dodge, Ford, Chevrolet, International, and GMC trucks with gross vehicle weight varying from 14,000 to 22,000 pounds.

The department also has three Brooks load lugger units, Model CH200 mounted on International KBS and KB7 trucks and one on a GMC 373 truck. We have ten open and four closed buckets, each of ½-cubic-yard capacity, interchangeable on all three units. Two express body ¾-ton and 1-ton trucks are used by the working foreman for transportation and for supervisory work. A Schramm Pneumatractor furnishes air for jackhammer and for drill operations and also provides a tractor for other uses.

We spray with a Fitz-Henry Guptil hydraulic machine, and remove sod with a Ryan sod cutter. As a timesaver, the Parker Springfield sweepers, both hand- and power-operated, are used in cleaning up excess grass clippings.

We can cut cost by approximately 50% by purchasing canvas in rolls 100 yards long and 10 feet wide. Twenty-five gravel canvasses, 10 by 12 feet, can be made from a roll. Corners are folded over and stitched with grommets placed in each corner.

A service shop which takes care of most of the maintenance work on equipment includes a blacksmith shop for sharpening tools, overhauling and repairing automotive equipment, reel- and rotary-type mowers, electric generators and trimmers used in mowing and trimming approximately 185 acres.

We install all foundations for monuments and markers excavating to a depth of at least 4 feet and in some places deeper. Concrete is poured several inches below the level of the interment, using large rock as a filler. In 1939, sectional concrete boxes were introduced to eliminate sunken graves, which were such a problem where wooden boxes had been used. These are manufactured by Central Products Co., Framingham, Mass., and cost less than a pine box. Even now we are still raising depressions from old wooden boxes used many years ago.

Winter Problems

The winter brings with it difficult problems of snow removal and frost in the ground, together with the usual large number of interments. Avenues must be plowed because an interment may be ordered in any part of the cemetery. A sidewalk-type snow thrower can

clear paths in sections prepared for winter interments. Three trucks equipped with straight-blade plows, and two with V-plows keep the roadways open. Plowing starts after accumulation of 3 inches and continues through the winter storms.

More than 2,000 feet of 5-foot snow fence is set out each fall to prevent snow drifting and falling on the sections and blocking the roads. As another valuable time-saver, approximately 200 sectional liners are installed in the veterans' lots, public lots and single grave sections during the summer for future use, thus, in bad weather, particularly in the winter, all that has to be done is to take off the loam and gravel, remove the cover and the installation is ready for use. One man can get the opening ready in 1½ hours.

Salt marsh hay is used to cover single graves, two-grave lots, veterans' lots and public lots to prevent frost from setting into the ground. This saves time on opening and in many instances we are able to save sod. Also, when seeding large areas early in the season or on slopes, this salt hay can be used over to keep the seed moist and stop it from washing away from sloping areas.

Administration

Pine Grave Cemetery was dedicated in 1850 and three years later was transferred to the City of Lynn by a deed of trust with certain rigid control stipulations.

Seven commissioners serve without pay for a term of three years. The employees of the department are all under civil service. Personnel consists of a superintendent, assistant superintendent, blacksmith, mechanic, 4 working foremen, 3 office workers, 4 motor vehicle operators, 20 laborers, 2 greenhouse men and some 30 summer men who work from April to October.

The department, a full receiving but not a disbursing office, performs full bookkeeping operations for all receipts and income from investments of more than $1,300,000 in bonds. Receipts for interments have gradually advanced from $8,756 in 1937 to $32,823 in 1957.

Operational costs have advanced at a far greater rate than income. Common labor costs are up from 70 cents to $1.60 per hour. Material costs have advanced from 150% to 200% in the last 20 years. Although the adoption of modern machinery and practices have helped to meet changing conditions to some extent, every cemetery must constantly look for new income and improved methods to keep down maintenance and operational costs.

Your City Can Capitalize

. . . on the Interstate Highway System constructions

THE UNITED STATES is approaching the greatest "face lifting" in its history during the next thirteen years. The cause is the Interstate Highway System which will link the nation's major urban centers with 41,000 miles of limited-access highway.

Many communities have prepared for the impact of the highway network. Too many have not.

Some Effects

Alignment of the Interstate System and the location of its interchanges will have a profound—and often determining—effect on the development of cities serviced by the network, because:

1. ***A high-speed highway will "urbanize" many undeveloped areas through which it passes.*** Thus, these areas will find themselves suddenly within the magic circle of "commuting distance," and new suburban communities will spring up. This has been noted in the Garden State Parkway, New York State Thruway and Connecticut Turnpike.

2. ***Since highway travel time is the same in both directions, industry will be given the opportunity to move outside the city and still draw on the city's population for its labor force.*** This trend toward "reverse commuting" has been noted in many sections of the country. Well-planned zoning will clearly be necessary.

3. ***A limited-access highway acts as a barrier between the two areas of a community it divides.*** Local roads which once traversed the right of way suddenly become, in many cases, dead ends. Thus, in areas where there is no nearby interchange, communities on either side of the highway will be significantly separated.

4. ***New community growth will spread in concentric circles from interchanges, and property values will soar in these areas.*** Commercial activity will boom along access roads, those leading to interchanges. Notice that on a limited-access highway, it is the interchange more than the right of way that attracts activity. On the Interstate System, many interchange areas will become urban extensions, the focal points of city expansion.

And while some property values rise to many times their original purchase price, some will tumble as a result of being bypassed by the Interstate.

Our municipal officials face a difficult task. They must quickly evaluate the impact of the new highway system on their communities, and they must make their views known to their state highway departments. A good way for a city to evaluate the impact is to answer the following questions:

1. Does the Interstate Highway System go through your city?

2. If so, how many interchanges are provided within your city?

3. If not, does the Interstate Highway System pass within ten miles of your city? (Ten miles or in driving time, 20 minutes, normally represents the outer limit of "accessibility." An industry seeking a site near your city, for example, would normally search within a ten-mile or 20-minute radius of your city.)

4. If the Interstate Highway System does pass within ten miles of your city, does it provide an interchange at or near its closest point?

5. If such an interchange is available, what provisions are made for the improvement of access roads, those between your city and the interchange?

6. Does your city have a commission, consultant or other agency specifically charged with studying the proposed Interstate Highway System—to assure that you receive maximum benefit from it?

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Site Planning Consultant
New York N. Y.

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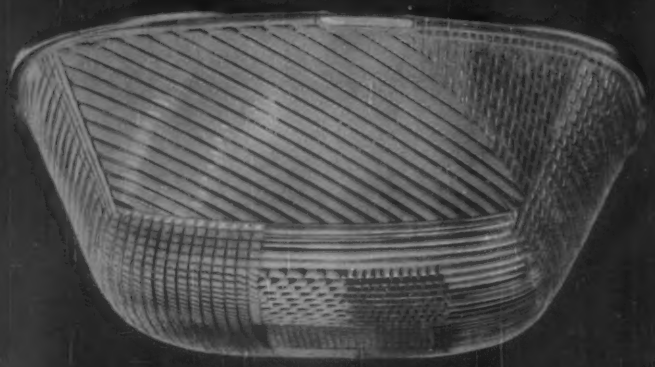

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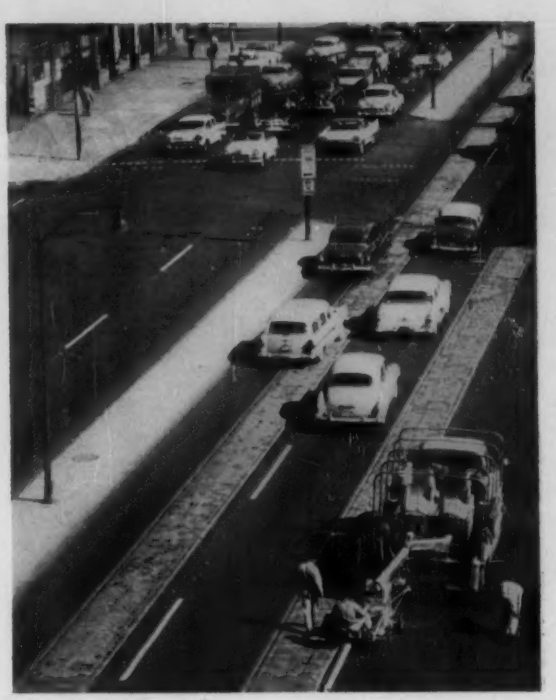
Barnes Storming Baltimore's Impacted Traffic

THE latest in traffic signals, vehicular and pedestrian; the simplest of signs, warning and directional; plenty of pavement markings, mostly plastic—are the best mechanical urgers to traffic flow even in arterio-sclerotic streets.

Under the direction of Traffic Commissioner Henry A. Barnes, Baltimore, Md. has installed wholesale all three types of devices. New signals and controllers have been installed or signalization has been modernized at 513 intersections, and pedestrian indications were installed at 213 intersections. Over 86,777 signs have been installed or replaced. Ten million feet of center and lane lines were painted in three years.



Millions of feet of Veon Permaline help get the most out of each Baltimore street.

Some Achievements

Plastic crosswalks were placed at 500 intersections, and a total of 2,115 intersections are marked with crosswalks. The first contract let for Veon Permaline was for 500,000 feet.

Parking was prohibited on the most congested streets and as of August 31, 1958, 5,852 parking meters were installed on other streets.

To have accomplished all this and more in four years and having the work continue in high volume requires objectives set at the start; a reputation for accomplishment that begets community confidence; an adequate, almost lavish budget; and a traffic department staffed with skill and equipped with the latest types of equipment. Baltimore had and attained all these.

The objectives were to relieve intolerable congestion. The reputation for success in traffic relief belonged to Traffic Commissioner Henry Barnes.

The budget went from $370,000 to $2,000,000; the number of traffic employees from 70 to 250. Equipment includes two-way radio, sign shop, signal repair shop, and 75 cars and trucks. One of the secrets of success here is applying the cure the instant the traffic ill is recognized.

Traffic Administration in the Nation's Capital

TRAFFIC engineering functions in the District of Columbia would be assigned to the Highways Department under a recent recommendation of the Automotive Safety Foundation.

The recommendation was made in a Foundation report to the District Commissioners. Entitled, *Traffic Administration in the Nation's Capital,* the 44-page report, presented in May, sets forth the findings of a month-long study conducted at the request of the commissioners.

The study measured the existing organization of traffic and highway engineering functions against seven criteria of good administration. The first of these stated that:

Related functions should be consolidated so that each unit of the organization is made responsible for a logical, clearly defined, separable function or group of functions.

The Foundation report noted that the District of Columbia is unique in that it provides its citizens with services normally divided between city and state governments. The control and operation of a total urban street system, the report declared, is normally a municipal activity while the construction of new routes of interstate and areawide importance ordinarily is performed by a state.

Administrative Organization

To consolidate those two related functions, the report recommended transferring traffic engineering responsibilities to an "Office of Traffic Operations" in the District of Columbia Highways Department. The new office would have the same status as the Offices

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Our specially trained Traffic Consultants are backed by many years of experience . . . you will find their guidance valuable and helpful. They are at your service.

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of Design and Engineering and Construction and Maintenance.

The report further suggested establishment of an "Advance Planning and Programming" unit to evolve and keep up to date a long-range program for the construction, reconstruction, maintenance and operation of the highway system. It stated that: "This is visualized as a small unit manpowerwise but staffed with capable professionals experienced in the line functions of the department."

Traffic engineering in the District now is assigned to the Department of Vehicles and Traffic (comparable to a state motor vehicle department). The report noted that:

The only possible avenue of increasing the District's transportation potential is to improve on the existing street system through (1) operational measures; (2) physical betterment; or (3) small additions (in terms of miles) of new routes.

Since these three are alternate approaches to the same problem of increasing transportation potential, logic dictates they all be placed under the same administrator.

Cape Town's Up-to-Date Traffic Program

Final authority was given by Provincial Administration on October 23, 1958 and construction has already started

By S. S. MORRIS, *City Engineer*
Cape Town, South Africa

JUST as railway traffic must be provided with railway stations, so too must motor traffic have suitable terminal facilities. It is irrational, to say the least, to pour millions into expressways leading to the city if the motorist, once having got there, can then find no place in which to park.

In all cities, the parking problem has become acute. The all-day parker tends to preempt the few spaces that are available; yet it is the short-term parker who is the customer of the business district and provides its raison d'etre. The short-term parker must receive preference.

This is the primary reason why highway authorities all recommend the installation of parking meters—a measure which makes enforcement of parking regulations relatively simple.

Parking meters, however, are not enough; off-street parking facilities must be provided.

For the Long-Term Parker

To serve long-term parkers parking lots not right in the core of the city can prove adequate; for maximum effectiveness they should be placed adjacent to the inner ring road so that traffic can be afforded easy access to, and egress from the parking lots.

The short-term parker resists walking. To cater to him, multistory parking garages must be built within say 200 to 300 yards of the principal shopping thoroughfare.

In most towns it is not practicable, because of high land values, to plan the inner city ring with so tight a radius round the city core that the parking garages necessary can abut directly on it; although in at least one town, ***Fort Worth, Texas***—a celebrated, albeit extremely costly, scheme has been prepared on just such a basis. Generally, parking garages will be required well within the ring and high standard access roads to them must be provided if congestion is to be obviated.

In Cape Town's highway planning all the principles enunciated above have been followed. The inner ring-road in Cape Town comprises Tafelbaai Boulevard on the northern or foreshore boundary, Bree and Buitengracht Streets on the western boundary, Pirow Street and a new road parallel to Buitenkant Street on the east and a closing link to the south, planned to run under the Avenue and link De Waal Drive with Bree and Buitengracht Streets.

A number of parking garage sites have been proposed within the central city itself. These will be fed from the ring road by high standard roadways.

Program of Implementation

Planning is, of course, merely the first stage of any project. The best of schemes are valueless if they remain merely blueprints pigeonholed for action only in some distant millennium when financial conditions will permit.

If any road development schemes at all worthwhile are to be accomplished in Cape Town, success can be achieved only by a bold and imaginative approach to the problem and by expenditure on what at first glance may appear to be a lavish scale, but which in the long run will prove a sound and indeed even profitable investment. This fact has been appreciated not only by the City Council and the Cape Provincial Administration, but also by the ratepayers of Cape Town. By approving recently all but one of the features of a £10,000,000 (pound sterling), ten-year road program, the green light has at last been given to a number of the city's road construction schemes.

76 Drivers Born Per Minute

THE FIVE-YEAR PERIOD ending with 1957 added some 11½ million new drivers to the nation's driving population, according to Dr. Forest R. Noffsinger, associate editor for Education, published by the Traffic Institute, Northwestern University.

The next four-year period based on birth rates, can be expected to add 2¾ million new drivers annually so that by the end of 1961 the country can expect about 11¼ million more drivers than today.

The three-year period beginning with 1962 can be expected to add another 10½ million new drivers—representing an annual addition of 3½ million, which will gradually increase to 4 million by 1970.

More About St. Louis' 10,000 Meters

By JOHN K. TRAVERS, *Superintendent*
Parking Meter Department
St. Louis, Mo.

District parking meter maintenance crew consists of five men who operate from their own station wagon and make all repairs on the street. Single- and dual-head meters police the city's off-street parking program.

SINCE the administration and operation of parking meters can now be considered big business, maintaining them and collecting the revenues is no small job in a large city. In June I described in these pages our job with St. Louis' 10,000 parking meters installed since 1951. ("10,000 Parking Meters Inspected Daily," p. 129).

While annual income is well over $500,000 in St. Louis, the meters were primarily installed to help relieve a traffic and parking problem. We had a severe problem and the meters did alleviate it and very satisfactory revenue followed their installation.

The problem of maintaining and collecting from so many meters calls for an independent Parking Meter Department charged with surveying new installations as well as the attendant functions. For simplified maintenance, all our meters are Mark-Time Hurricane models manufactured by M. H. Rhodes Co. of Hartford, Conn. Manually operated, their simplicity lends itself to our maintenance plan: daily check, weekly street tests, biyearly repainting of meter posts and five-year repainting of meter housings.

Collections are time-consuming. To minimize this, we collect according to usage. Depending on the average number of coins deposited per meter, our schedules are arranged on a weekly, 10-day or two-week basis. These schedules are periodically reappraised.

The sealed coin-box system is used. The full container is collected and an empty one inserted. In the office, the coins are handled by a Satco automatic coin sorter and counter manufactured by the Sattley Co. of Detroit, Mich. All containers must be accounted for.

Our meter servicing system works smoothly not only because its elements fit together; another factor is adequately paid and properly supervised employees. Such employees take pride in their work and the department wins the confidence of the motoring public. This usually assures a steady flow of meter revenue which is the sinew of stronger parking programs.

New ITE Officers

Matthew C. Sielski, director of Traffic Engineering and Safety for the Chicago Motor Club, was named president of the Institute of Traffic Engineers at the annual meeting held in Miami Beach, Fla., November 1958.

Elected as vice presidents were Edward G. Wetzel, assistant chief of the Planning Division of the Port of New York Authority, and Alger F. Malo, director of the Detroit Department of Streets and Traffic.

Named secretary-treasurer was Gordon K. Gravelle, assistant commissioner of the New York City Department of Traffic.

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Five modern styles available

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NO OTHER lighting standard matches the clean design of the Elite Octa-Tube. It is styled simply . . . to stay modern through the years.

But there is more than beauty. The tapered arm is attached to the *top* of the pole . . . will not disengage when pole is under heavy impact. Its gentle curve forms a natural wireway, free from sharp bends.

The integral base is rugged (made from steel 50% heavier than the pole itself) . . . and because of its height and tapered design, is able to withstand the impacts of hardest service.

Elite Octa-Tubes have fewer parts . . . only 9 (compared with about two dozen in a conventional standard). And of course, all Millerbernd standards are fabricated of *extra-strength* steel!

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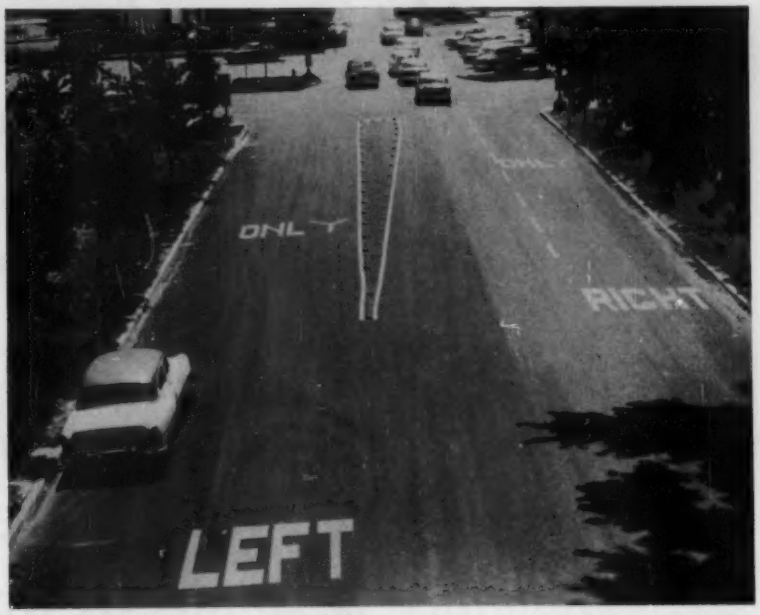
Traffic Island In Springfield

By JOHN E. HARTLEY
City Traffic Engineer
Springfield, Ill.



This is Springfield's Seventh Street, which runs into two-way Grand Avenue. A traffic island, installed on the approach to the intersection, took the guesswork out of what to do.

WITH more than 14 miles of one-way streets, Springfield, Ill. had, at the end of 1957, more than twice the one-way mileage reported to the National Safety Council by the average city in the 50,000-to-100,000 population group.

Although the extensive one-way system had improved over-all traffic flow, the matter of terminating various one-way couplets in a manner that would provide orderly traffic movements had long been a problem to city officials.

One-Way Streets

It is important to define clearly the ending of one-way streets at locations where traffic operates as two-way on the far side of the intersection. Springfield has a number of such terminations at present, and the Springfield Street Department has programmed various street improvement projects that eventually will extend the one-way street system to more logical terminating points.

The intersection of Seventh and South Grand Avenues is typical of how the program has been carried out. Seventh Street is a 49-foot-wide southbound one-way arterial carrying 10,000 vehicles per day. It terminates at South Grand Avenue, a 48-foot-wide two-way street carrying 22,000 vehicles per day. At this time it is not feasible to extend one-way operation on Seventh Street further south, pending future street improvements in the area. In view of this proposed future extension of one-way operation, it was necessary to redesign this termination as inexpensively as possible but with a high degree of permanence.

Field observations indicated that one-way traffic approaching the terminal did not readily convert to two-way operation on the far side of the intersection, thereby creating a potential head-on accident hazard. Furthermore, traffic from the south often proceeded north across the intersection and entered Seventh Street against one-way traffic, despite numerous warning signs and special traffic signal indications.

To reduce the accident hazard and smooth the flow, an island was installed on the approach to the intersection together with a parking restriction on one side of the street. Traffic was segregated into a lane for left turn only, a through lane, and a lane for right turn only. Traffic flow improved immediately as a result of this clear definition of the termination of one-way traffic.

Island Installation

The island was constructed by securing to the pavement with Parker-Kalon nails a number of newly developed, rubberized mushroom markers procured from Hofran, Incorporated, 3102 North Habana Ave., Tampa, Fla. The pavement was marked with Sherwin-Williams reflectorized paint and the letters were applied with 8-foot stencils fabricated by the Traffic Engineering Department Sign Shop. Total cost of the projects, including all materials and labor, was less than $100.

The improvement has created widespread comment, especially from those motorists who have driven through the intersection under artificial lighting. In order to make the island visible to nighttime drivers, each marker was treated with a liquid substance produced by Minnesota Mining & Manufacturing Co. called "Codit." This substance causes the markers to glow brilliantly under the reflection of automobile headlights. The glow material has worked so well that not a single tire mark is in evidence on any of the markers 60 days after installation.

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Created for Chicago's State Street to replace Union Metal poles installed in 1926.

The Connecticut Turnpike—longest highway lighting system.

Yardstick of Highway Lighting

By GEORGE A. NAGEL*, *Electrical Consultant*
Chester, Conn.

NOW that the Connecticut Turnpike is lighted, it will be of interest to review the tremendous amount of work and research that went into this highway lighting project which, in part, provides approximately 53 miles of continuous roadway lighting—probably the longest stretch in the United States.

Some 15 years ago Connecticut roadway planners recognized the need for relieving traffic on the Boston Post Road, U. S. 1. Towns along this route were having real traffic problems and only limited relief measures to increase the roadway capacity were possible. The practical solution was the construction of an expressway so located as to divert traffic from heavily traveled Route U. S. 1. The new construction was authorized by the State Legislature which subsequently officially designated the new road as the Connecticut Turnpike.

Lighting Design

The original design for lighting the Turnpike was to light only points of hazard such as interchanges. With some 50 interchanges on the 53 miles of roadway between ***Greenwich*** and ***Branford*** and with toll plazas and service areas, there were many sections where the lighting would overlap. Some illumination would also be derived from the street lighting in the urban areas through which the Turnpike would pass. There would be only several relatively short, dark stretches. This posed a serious problem of eye adaptation to darkness after leaving lighted areas and the possibility of inducing fatigue by this repeated eye adjustment.

Eye adaptation is an important factor in nighttime driving. There is a measurable loss of vision when one leaves a lighted area and the eye has to adapt itself to darkness. The degree of such loss and the time of recovery depend on the light intensities involved. All of this requires work on the part of the eyes and induces fatigue.

One of the advantages offered by fixed roadway lighting is the reduction of glare from oncoming car headlights by providing a background of pavement brightness. This reduces the eye strain.

It was decided that the roadway lighting on the Turnpike should be continuous from the New York state line at Greenwich to Branford, a distance of 53 miles. On the rest of the Connecticut Turnpike from Branford to the Rhode Island state line at ***Killingly*** it was determined that the traffic would be much lighter and continuous roadway lighting would not be provided.

To determine which type of luminaire would best serve the needs on the Turnpike the Connecticut State Highway Department set up a one-mile test section on Route U. S. 1 in ***Old Lyme.*** Mercury vapor, fluorescent and low-brightness luminaire installations were tested.

The details and an engineering analysis of the test installation are given in a paper entitled, *A Highway Lighting Test Installation*, presented at the National Technical Conference of the Illuminating Engineering Society in Boston, Mass., September 1956, and printed in the *Journal of the Illuminating Society*, March 1957, Vol. LII, No. 3.

A public opinion survey questioned the traveling public. From the limited sampling the public showed a distinct preference for fluorescent highway lighting.

The installation of fluorescent lighting on the 53 miles of the western section of the Connecticut Turnpike would cost $300,000 more than would be the case with conventional mercury vapor luminaires. This

* Mr. Nagel was formerly Associate Highway Engineer with the Connecticut State Highway Department.

additional expenditure could not be justified by the test results. It was recognized, however, that further tests should be conducted with fluorescent lights, and the decision was made to include some seven miles of such lights on the western section of the Turnpike. Fluorescent lights have, therefore, been installed in the towns of ***Darien*** and ***Stamford.***

To provide comfortable and safe nighttime driving, several innovations have been incorporated in the roadway lighting design. The first is light intensities to promote eye adaptation. Starting about 1,000 feet ahead of an isolated interchange to be illuminated, the first two luminaires will be lamped with 100-watt lamps, the next two with 250-watt, and the balance with 400-watt lamps. The same gradation of light, in reverse order, is provided for a distance of 1,000 feet beyond the interchange. This gradual change in light intensities eliminates the sudden transition from light to dark areas.

Driver orientation is naturally more difficult at night than in the daytime. While driving at night a stranger to the road will very often belatedly recognize a point of egress from the highway. If, as is often the case, he is in the inside lane, he will make a last-minute attempt to reach the outside lane and enter the egress ramp. This causes "weaving," a traffic hazard especially on a six- or eight-lane highway. To help avoid such a condition there are installed on the Turnpike three amber lights at each point of egress from the Turnpike. The luminaires selected for this service have a large projected light area, some 400 square inches as compared with 100 square inches in the conventional mercury vapor unit. These amber lights pinpoint the exits.

The State Highway Department is installing 250-watt lamps in directional luminaires on the ramps on the eastern section of the Turnpike. The directional luminaires provide a pavement brightness which compared favorably with that obtained from the conventional mercury bi-directional luminaire using a 400-watt lamp. The 250-watt lamps naturally use less electric power.

System Adopted

In supplying electric power for fixed roadway lighting, the question always arises as to the system to be used, i.e., multiple vs. series, and whether the installation shoud be aerial or underground. The present trend seems to be toward underground installations in the belief that the aesthetics of the installation are improved.

On the Turnpike, aerial wires have been installed and power is supplied by a series of constant-current transformers. Two transformers are connected "back-to-back" to supply 80 mercury vapor luminaires by means of three No. 12 copper wires around a steel core. This installation was decided on as it represents a saving of about $150 per pole as compared to the underground multiple system. For 5,000 poles this is a substantial amount of money.

The Connecticut Turnpike lighting installation demonstrates that aerial wiring does not have to be unsightly. In fact many people do not realize that such an installation has been made. Ballast location is probably more important. All luminaire ballasts are mounted on the side of the pole away from oncoming traffic so that they are quite inconspicuous.

There was some feeling that the use of bare wire for the aerial installation is hazardous. This is not the case since the series circuits are provided with protector relays which disconnect the circuit if the wire should break. Utility company experience in this area shows that power interruptions on aerial installations are generally caused by falling tree limbs. Since tree planting is controlled on the Turnpike and existing trees are trimmed to provide 15-foot clearance from aerial wires, falling limbs will not be a problem.

Maintenance costs will be a lot lower with the aerial installation since it is much easier to locate troubles in aerial system and less costly to repair them than is the case with underground systems. This has been borne out by the experience of the utility companies in Connecticut in repairing hurricane and flood damages to their installations.

What Type of Poles?

One of the major decisions to be made in designing a roadway lighting system is the type of standard or pole to use. A small saving in unit cost could amount to quite a sum in the total cost. Such savings are important not only in the purchase and erection costs but more so in the maintenance or recurring cost. Lighting standards are made of steel, concrete, wood, aluminum, fiber glass, etc., each of which has certain advantages and varying prices.

The State Highway Department wanted to offer each vendor an opportunity to bid on his product. It therefore objectively evaluated the advantages and disadvantages of the various materials. The result was expressed in different dollar values which were added to the bid prices on the poles so as to put them on an equal basis. The "adders" were published in the invitation to bid so that each vendor had an opportunity to protest to the department if the "adders" were manifestly wrong and he could prove his case. The award was then made on the basis of the lowest price when the "adder" was added to the bid price. Based on this procedure aluminum poles were selected and purchased.

Much time and effort was put into the planning and design of the Connecticut Turnpike illumination. Not only will the lighting of the Turnpike contribute to traffic safety during night hours but it will provide a very substantial stimulus to the entire field of highway lighting.

EDITOR'S NOTE: For more on this subject, see also "Connecticut Lights 53 Miles Continuously," July 1957, p. 159; "Luminaires Bought for Connecticut's 53-Mile Turnpike," April 1958, p. 144; and, "Getting On and Off Connecticut 'Pike at Night," October 1958, p. 154.

Fluorescents in Hampton, Va.

DISSATISFIED with the 6,000-lumen incandescent luminaires installed in 1952, Hampton, Va. merchants requested that "the most modern source of illumination available" be installed. The result is 47 General Electric fluorescent luminaires, 29 in the Queen Street shopping area and 18 in the Phoebus business district.

Historic Hampton, only three years younger than Jamestown, is proud of its heritage, but citizens of the bustling Hampton Roads community are even more concerned with the future of their town.

TWO "FIRSTS" BY FLEX-O-LITE

1

To make your Budget for Reflectorized Signs go Farther . . .

NEW 831 IMPROVED

GLASS BEADS

For high quality and low cost applications to Traffic Signs, Street Name Signs, License Plates

Now, thanks to better research and engineering, your signs can have the ultimate in long range reflectivity, plus day and night message legibility never before obtainable at any price. Applied at economical cost and "permanized" with Flex-O-Lite's amazing "STORMCOTE", protective covering agent, you get new highs in weather, water, dirt and wear resistance, plus *nearly 90° angularity!* Put the new Flex-O-Lite 831 Reflective Sign System to the test in your own shop. Details in our new bulletin. Write today.

Available in "extra-fine" grade for Street Name Signs and License Plates. Affords extra velvet-smooth finish for added dirt and wear resistance, and greater economy.

2

Savings in Time • Money and Labor Insured*

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FREE-FLOWING GLASS BEADS

*The result of five years of research and development. Field tested for two years with the cooperation of highway and traffic engineers . . . your assurance of satisfaction.

LOOK AT THESE OUTSTANDING FEATURES

Marked resistance to high humidity • Flow freely through dispensing equipment • Store for unlimited periods without agglomerating Contains no waxes, oils or silicones • Offer perfect adhesion to any suitable traffic bead binder Eliminates necessity of daily cleaning of hoppers for additional savings in time and labor

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Extra large Type "H" Safety Spheres—for Guard Rails—Curbs—Pavement Messages—Bridge Abutments, etc.

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P. O. BOX 3066 (AFFTON BR.) • ST. LOUIS 23, MISSOURI

MAKERS OF DROP-ON, FREE-FLOWING, STANDARD, MILITARY, MOISTURE PROOF AND HIGH INDEX SIGN BEADS

Asheville's newly lighted square.

Asheville Bathes in 3½ Times More Street Light

By EARL ELLER, *Mayor*

ASHEVILLE'S new mercury vapor street lighting system is one of the most advanced in the Southeast and the largest in North Carolina. Asheville's first electric lights of 70 years ago were also described by the Asheville *Citizen* as "the best yet adopted in this state."

The new system features color corrected mercury vapor lamps with four times the life of the old lamps and from which most of the blue color of the conventional mercury vapor has been removed. They give 3½ times the amount of illumination at 1.40 times the cost of the old lights.

Installation of the new lights has been a task. They total 547 of 20,000 lumens each and 20 more of 10,000 lumens. They are Westinghouse Electric luminaires replacing 281 of the old 10,000-lumen and 7¢ of the 6,000-lumen lamps.

In Asheville's downtown area 330 mercury vapor lights have gone up replacing 284 old lights. In West Asheville 125 of the new lights replace 45 of the old, in Biltmore 92 new lights replace 28 old ones and Patton Avenue has 20 new incandescent lights. Most of the new lights are installed on 29-foot poles with four-foot up-sweep brackets further to spread illumination. Thirty-three are new steel poles made by Elreco Corp., Cincinnati, Ohio.

The new system has safety factors built in. The lamps are on separate series circuits. If one circuit develops trouble, the remaining lights—perhaps on the opposite side of a street—continue to function. Replacement and ease of maintenance are added advantages.

The Old and the New

The history of electric lights in Asheville is as colorful as the city itself. Its streets had been lighted by gas and kerosene lamps until 1888, when L. A. Farinholt of Knoxville joined with associates to bring electric street railway and lighting service to the city.

They built a small steam generating plant on Valley Street in 1887, and the first electric lights went on in 1888. Thomas Edward Davis of 34 Hillside Street supervised the cutting of long poles to be used for the first street lights.

These masts, rising 125 feet into the air, were erected on the four corners of Pack Square. Twenty arc lights were attached in a cluster at the top of each mast.

A wag suggested at this time that the people of neighboring Madison County should help Asheville pay its street light bill—claiming that the rays of the Asheville lights gave some illumination to Madison also.

Safety a Factor

All was not rosy with the new system, however. The high-flying arc lamps drew the ire of some townspeople. One suggested more poles with incandescent lights about 10 feet off the ground.

The light company serviceman agreed for it was his daily task to risk life and limb by climbing the masts to clean and trim the carbons. In bad weather the poles were slippery, and swayed in the breeze. These masts were removed in the early 1900s and corner street lights were installed by Asheville Electric under a contract to supply power for 50 arc lamps.

Street lights and home electric lights suffered the same difficulty as the new street railway system, a lack of adequate electric capacity. The lights were limited to burn only until 10 o'clock at night and not that long if the moon was shining. There was so little capacity that customers were asked to turn off their lights on nights when the Opera House was used for special occasions.

E. G. Carrier built a 40-kilowatt direct current hydroelectric generating plant on Lower Hominy Creek

(Continued on page 117)

ZZZZZ

You know this little man. His isn't just a personal problem. He's a problem to you, too.

He goes around at night as if he were sleepwalking. He pops out without caution from behind a car. He crosses, without looking, at the darkest corner.

You jam on the brakes. Then, a block later, you sweat a little, thinking of what *could* have happened.

Why didn't you see him? Blame it on the street lights!

Proper street lighting means more than hanging up enough light bulbs. If your streets and highways have aimless patterns of light and shadow, your lamps aren't doing their job.

Corning makes glass refractors that *control* light distribution from street lamps. These refractors eliminate wasted light. They direct light where it's needed to help a whole city drive and walk with greater safety.

You can get Corning refractors in tough PYREX brand glass for reliable service—to resist damage from heavy storms, extreme cold, or little boys with big stones.

Talk to a manufacturer of street lighting equipment to see what an up-to-date lighting system can do—for both the safety and prosperity in your town. And insist on Corning refractors for the luminaires.

For further information, just write Corning Glass Works, 63 Crystal Street, Corning, New York.

CORNING GLASS WORKS

CORNING MEANS RESEARCH IN GLASS

MORE BIG NEWS FROM

Now a *DIESEL* Engine for JOHN DEERE 440 TRACTORS

Bringing you every DIESEL advantage PLUS 10% MORE POWER

Here, power-matched to John Deere "440" Crawlers and Wheel Tractors, is a modern Diesel power plant that means even greater savings for you on time and fuel. Equipped with this famous "Jimmy" Diesel engine, John Deere "440" Tractors not only provide *more* power—10 per cent more than previous tractors in the line—they also give you the *faster* response of high-compression, high-torque Diesel performance.

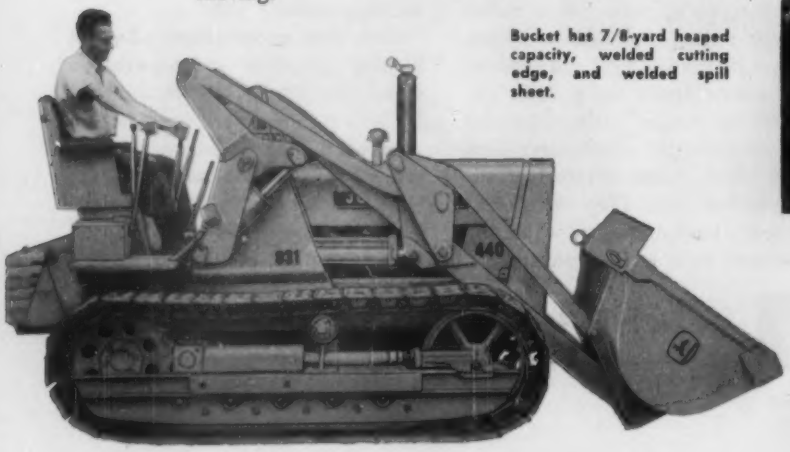
In addition, the "fire insurance" of Diesel fuel opens up new construction and materials-handling jobs to the John Deere "440" in mines, dockyards, and other confined areas.

Whatever your reasons for preferring Diesel power, act now—cash in on modern Diesel advantages with a John Deere "440" Crawler or Wheel Tractor and matched working equipment.

A *New* answer to speedy, low-cost loading... THE JOHN DEERE 831 LOADER

Take your choice of John Deere gasoline or Diesel power, but pick the new John Deere 831 Loader for a *new low* in earth-moving costs! Rugged construction, plus the husky hydraulic system of the "440," provides extra pry-out pressure and lifting ability that greatly increase daily work capacity.

Check into the new John Deere 831 Crawler-Loader now—start setting new records for low-cost earth moving.



Bucket has 7/8-yard heaped capacity, welded cutting edge, and welded spill sheet.

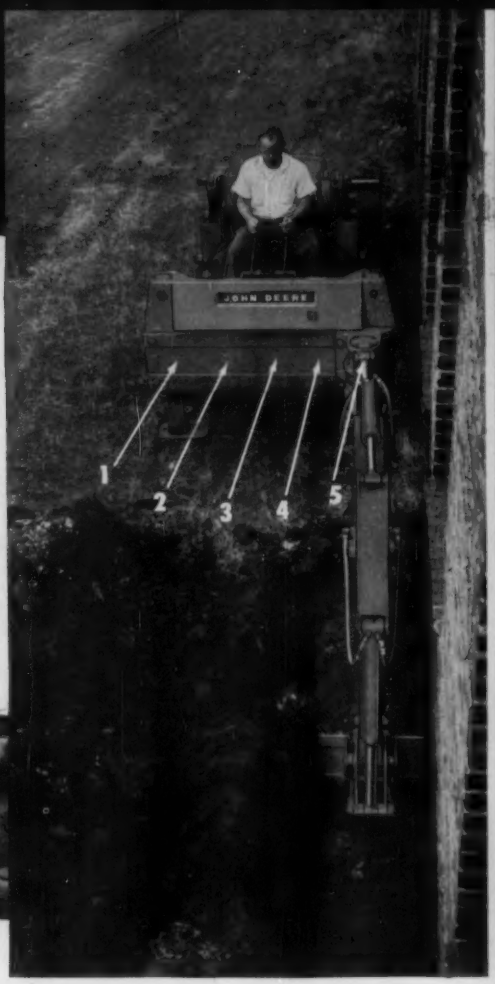
When bucket is dumped from full-height position, it returns to the ideal 9-degree digging angle by use of the boom control only.

JOHN DEERE

Introducing the FIRST 5-POSITION BACKHOE in the Field... THE *New* JOHN DEERE No. 51

One man with a wrench can set the boom on this John Deere 51 Backhoe in any of five mounting positions—in 15 minutes or less. End position at right or left speeds flush-digging along buildings. End mounted, the hoe folds against tractor to make a compact, well-balanced unit for transporting.

Ground-level reach: 20 feet, 9 inches. Working depth: 13 feet, 6 inches. Dumping height: 11 feet, 9 inches. Boom travel: 180 degrees.



PLUS ...a brand *New* center-position BACKHOE... THE JOHN DEERE No. 50

Working depth of the John Deere 50 Backhoe is 13 feet, 6 inches. Bucket has side-cutting edges and replaceable teeth.

Here's reach and power to tackle any trenching job! Center-mounted boom has a 20-foot, 3-inch reach at ground level, swings smoothly through a 205-degree arc by hydraulic power. Two control levers do the job, while operator sits in comfort. Same hydraulic system that operates backhoe also powers loader.

JOHN DEERE Industrial Tractors and Equipment

Completely Engineered for Industry

SEND FOR FREE LITERATURE
JOHN DEERE INDUSTRIAL DIVISION
• Moline, Ill. • Dept. D-49-H

Please send free information on ☐ "440" Diesel Crawlers ☐ "440" Diesel Wheel Tractors ☐ 831 Loader ☐ 50 Backhoe ☐ 51 Backhoe.

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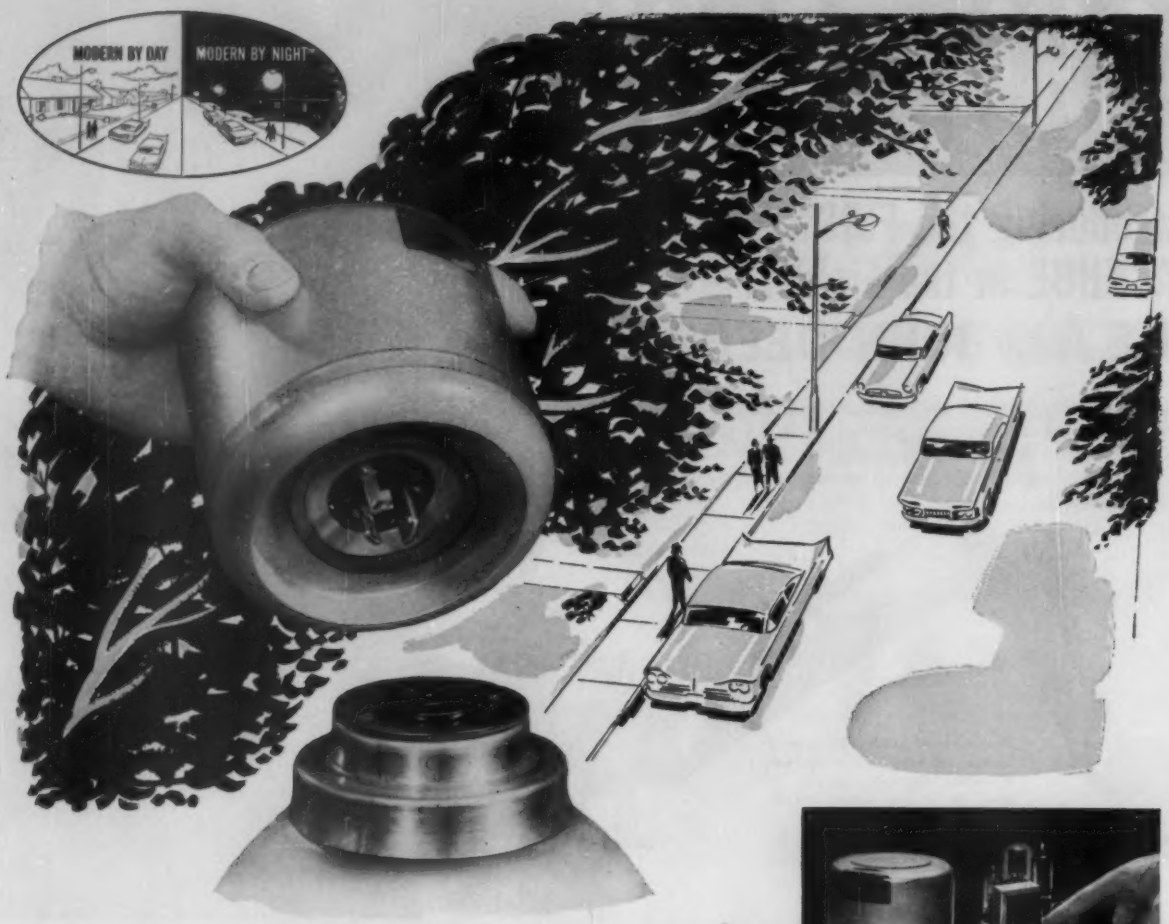
*City*_____

*State*_____



GENERAL ELECTRIC INTRODUCES

NEW reliable, twist-lock photoelectric control

The new General Electric photoelectric control—designed for years of reliable service—will save you money in the long run.

Here are five reasons why:

1. Built-in Thyrite* surge protection at no extra cost.
2. Long tube life achieved by continuous burning of amplifier tubes at well below their rated values.
3. Relay contact (the only moving part) built and tested for years of reliable service.
4. Basic circuit proved dependable by years of actual field operation.
5. Quality construction, with printed circuit and dip-soldered connections.

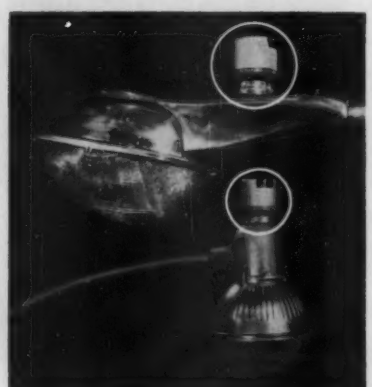
For long-range economy in your street-lighting control circuit, call your nearby G-E Apparatus sales engineer or agent and ask to see the new twist-lock photoelectric. Or, write today for all the details. General Electric Company, Schenectady 5, New York. 450-8

Progress Is Our Most Important Product

GENERAL ELECTRIC

BUILT-IN THYRITE* PROTECTION—an exclusive G-E feature—guards against damage from induced voltage surges, eliminates added cost of external secondary arrestor.

*Reg. Trade-mark of General Electric Co.



ADAPTABILITY—New photoelectric control fits General Electric mercury "Power Pack" (top) and mercury or filament Form 101 hoods, and is designed to NEMA and EEI standards.

(Continued from page 112)
and in 1890 added a pair of 50-kilowatt generators to light West Asheville streets. In 1892, the company extended electric service and street lighting to Asheville proper.

The Asheville Electric Company was formed in 1897 to take over the system, and by 1900 it was serving 100 street lights and 5,000 "torch type" incandescent lights. In 1910, Asheville Electric became Asheville Power & Light Company and operated electric, gas and transportation facilities in the city.

In 1920, Asheville Power & Light's inventory showed 265 arc lights and 200 incandescents. When the new installation is completed Asheville will have a total of 2,587 street lights.

Asheville Power & Light was merged into Carolina Power & Light in 1926, and 80 Novalux lights were erected as Asheville's "white way."

Butte-ful Street Lighting

BUTTE claims it is the best lighted city in Montana since 148 new fixtures were installed in the uptown section in 1958 by the Montana Power Co.

Fifty-three of the new lighting units are 20,000-lumen mercury vapor luminaires. The remainder are 10,000-lumen incandescents. All are mounted on 28-foot steel poles. These poles were fabricated locally at the Western Iron Works in Butte.

Says Mayor W. P. Donnelly on the night the lights were turned on:

Tonight it is a distinct honor to me, as your Mayor, to inaugurate a new era of light for the mining city. This is but the first phase of the new system made possible by the combined efforts of your city government and Montana Power.

We have realized for some time that we were not equipped for safe driving and adequate protection for the pedestrian. This new lighting project will inspire the civic pride in Butte as a city with a future.

Christmas at Nela Park

THE 25th Christmas lighting display at General Electric's Nela Park in Cleveland, Ohio included a lighted igloo; a "frozen" pond of lighted bulbs, complete with a skater; a fairy-like island of lighted snowflakes; and a series of stained glass windows and manger scene.

The 1958 display was turned on December 6 and continued through January 3, 1959, according to Donald L. Millham, G-E vice president and general manager of the Lamp Division.

Eight separate displays of imaginative lighting designs at auto eye level were coordinated into a mile-long holiday greeting climaxed by an inspirational religious scene at the exit.

The 100-foot man made Yule tree, featured on the 1957 December issue of THE AMERICAN CITY, was completely animated in a colorful new lighting design that changed color patterns before the eyes of its viewers. Under the tree was the igloo depicting the North Pole. The igloo, with an open dome and aluminum framing, permitted a view of Santa's workshop.

The display continued past a series of "surprise" tin-can Christmas trees, creating intriguing starlike patterns of light. This could be easily duplicated by home holiday decorators with discarded tin cans.

Home-owners who felt a lack of growing evergreens in their holiday landscape especially delighted in one scene that depicted a large variety of suggested ways for decorating "bare branch" trees. Gay patterns, subtle color effects, and artistic designs for bare-branched elms, maple, oak, and other trees were displayed as one of 1958's new techniques in outdoor holiday decorating.

Expressway Lighting

Good lighting and good signing carried by Union Metal Monotube poles on an expressway in Louisville, Ky.

Suppliers of Lighting Equipment For Connecticut Turnpike

Conventional mercury luminaires: General Electric Co., Hendersonville, N. C.
Fluorescent luminaires: Line Material Industries, Milwaukee, Wis.
Linear low-brightness luminaires: Wheeler Reflector Co., Boston, Mass.
High-voltage cable specified: General Electric Co., Bridgeport, Conn.; The Kerite Co., New York, N. Y.
Rigid steel conduit: General Electric Co.
Aerial bare conductor: Copperweld Steel Co., Glassport, Pa.
Constant-current transformers: General Electric Co., Schenectady, N. Y.
Aluminum poles: Pfaff and Kendall Co., Newark, N. J.
Wire connectors specified: Burndy Corp., New York, N. Y.
Wire and cable: Ace Wire and Cable Co., Howard Beach, N. Y.; General Electric Supply Co., Yonkers, N. Y.; Irving Electric Supply Co., Newark, N. J.

HUBER-WARCO
motor graders

right for any grading job

The Huber-Warco development engineers have designed the motor grader line with the user in mind. In addition to routine grading and maintenance assignments, the Huber-Warco motor graders will spread stone or blacktop, ditch, bankslope, or any other job required of a grader with a maximum of efficiency and a minimum of down-time. Huber-Warco motor graders are available in both torque converter and standard transmission models in a horsepower range of 75 to 195 h.p. Let your Huber-Warco distributor show you the many plus features of Huber-Warco motor graders.

MAINTAINER

MOTOR GRADERS

TANDEM ROLLERS

3-WHEEL ROLLERS

Products of HUBER-WARCO COMPANY, Marion, Ohio, U. S. A.

HUBER-WARCO COMPANY, Marion, Ohio, U.S.A.
☐ Send specifications on Huber-Warco motor graders.
Send specifications on: ☐ Maintainer ☐ Tandem Roller ☐ 3-Wheel Rollers

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City ..... Zone ..... State .....
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HUBER W WARCO

Stiffer State Traffic Control Proposed

THE STATEWIDE Citizens Council on Traffic Safety, appointed by New York's Governor Averell Harriman in 1957, recently proposed a ten-point program for legislative action and urged the New York State Legislature to authorize the appointment of an additional 500 men to the New York State police force.

Thomas N. Boate, chairman of the Citizens Council, said:

We need only to look at the history of highway accidents in the State of New York to realize fully how far short we have come in the enabling of the State Police to fulfill its responsibility for protecting the public welfare.

The State Police is presently comprised of 1,500 officers and men. It has not been possible to assign at any one time on the average more than 550 men to the policing of the 87,000 miles of rural highways of the state.

Recommendations

The program of recommendations includes:

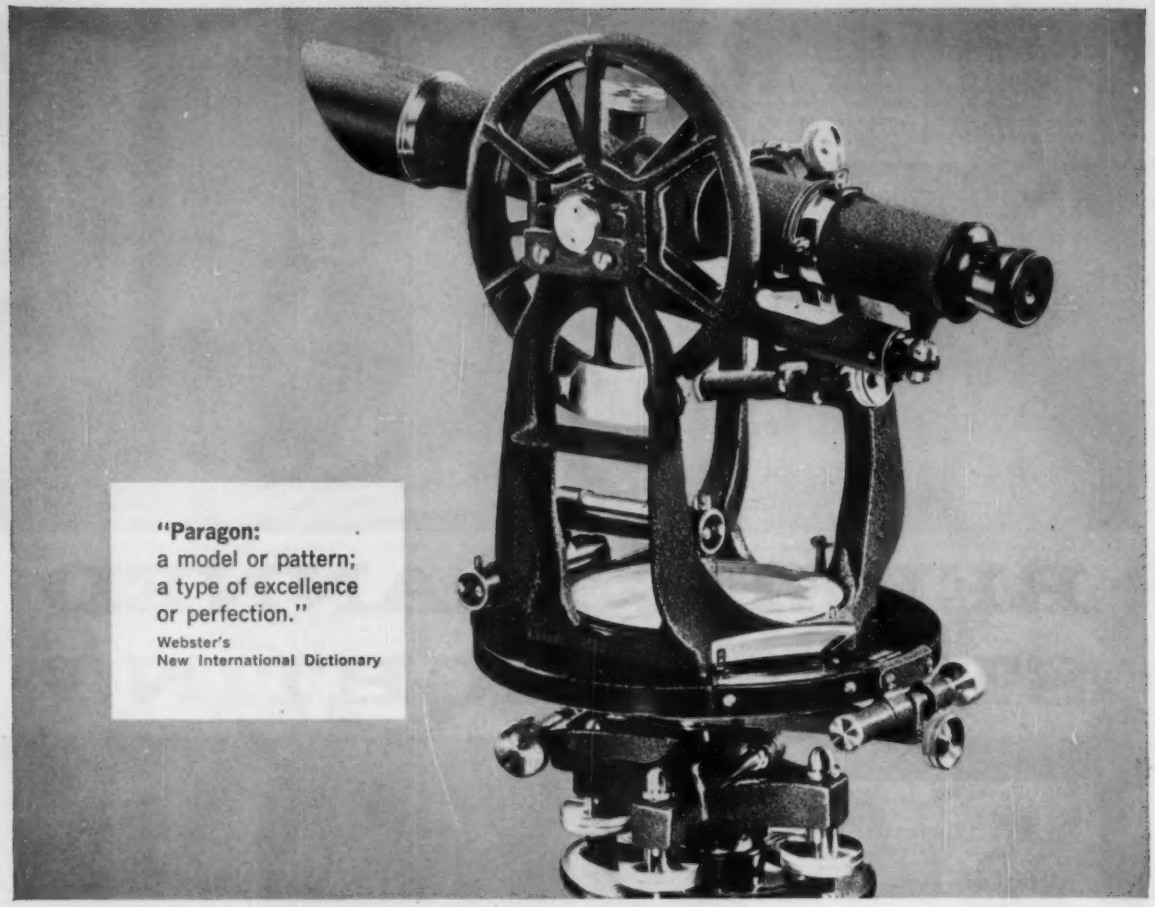
- **Adopt constitutional amendment to establish the Motor Vehicle Bureau as a separate independent department**
- **Modernize state speed laws to provide for more realistic speed regulation.**
- **Permit license suspension following involvement in any serious accident.**
- **Clarify law against drunken driving by using the term "driving under the influence" instead of "while intoxicated."**
- **Require 30-day suspension for second conviction within 12 months of reckless driving or speeding in excess of the statewide or thruway maximum speed limits.**

If there is any lesson, more essential than any other, for this country to learn, it is the lesson that the enjoyment of rights should be made conditional upon the performance of duty. For one failure in the history of our country which is due to the people not asserting their rights, there are hundreds due to their not performing their duties.

—JOHN BEVAN

It is always the minorities that hold the key to progress; it is always through those who are unafraid to be different that advance comes to human society.

—RAYMOND P. FOSDICK



In Transits too, K&E Paragon sets the pattern of perfection

The superior optical qualities and precision operation which K&E builds into the Paragon Transit® are designed to last a lifetime and offer the maximum in performance and ease of use. Compare the Paragon with other transits, feature by feature. Only the K&E Paragon Transit has all five of these important advantages:

1. A Completely Enclosed Achromatic Telescope . . . with an achromatic eyepiece *as well as* an achromatic objective lens. It sights clearly and sharply, with less eye strain. Enclosed telescope is fully sealed, stays free from dust and moisture.

2. Chrome Plated Draw Tube . . . with one of the hardest bearing surfaces known to man. Tube cannot wear as it moves back and forth on bearing rings, so line of sight remains stable.

3. Stainless Steel Axle Journals . . . for the best possible bearing surface. Ease of operation is retained no matter how many times you change the telescope from the direct to the reverse position.

4. One-Piece Spanned Vernier Disc . . . to make sure that the verniers always stay exactly 180 degrees apart. Even under the roughest, most demanding field conditions, angle readings of the Paragon Transit will stay true.

5. Chrome Plated Center . . . combines the toughness of non-brittle forged Everdur with the hardness of chrome.

Naturally, because the K&E Paragon Transit is the best, it costs a little more than ordinary transits. But see for yourself how much more it has to offer. A call to your K&E representative will quickly arrange for a demonstration. Fill out and send in the coupon below.

1812

KEUFFEL & ESSER CO. Dept. AC-1 Hoboken, N. J.

Gentlemen: ☐ Please have a K&E representative show me the K&E Paragon Transit.
☐ Please send me more information about the K&E Paragon Transit.

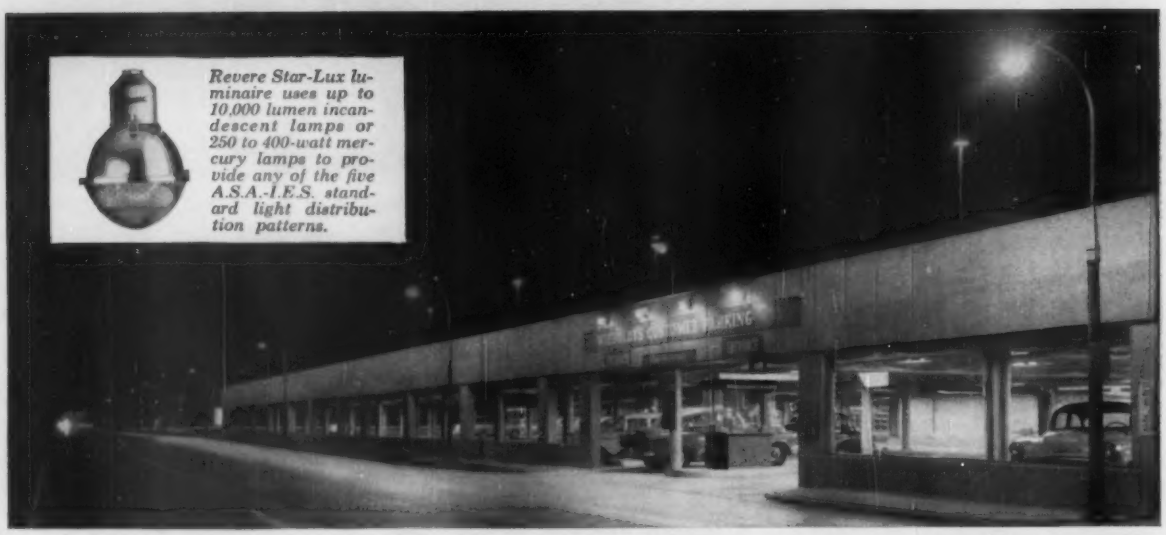
Name & Title _____

Company & Address _____

_____

Daytime scene of River Forest, Illinois street using Revere Star-Lux incandescent street lighting luminaires on converted concrete poles.

REVERE PLANNED STREET LIGHTING



Revere Star-Lux luminaire uses up to 10,000 lumen incandescent lamps or 250 to 400-watt mercury lamps to provide any of the five A.S.A.-I.E.S. standard light distribution patterns.

Planned street lighting demands different types of lighting for different traffic conditions. As the night photograph shows, the Revere Star-Lux provides moderately-traveled streets with uniform, moderate-intensity lighting . . . efficiently and economically.

The Star-Lux is a versatile and efficient member of the reliable line of Revere street lighting equipment. Recently-developed features of the Star-Lux include a built-in ballast compartment in the fixture head and a twist-lock plug in the head to accommodate a photo-electric control unit. Write for Revere Street Lighting Catalog.

Other luminaires in Revere's complete line

For heavily-traveled streets—Revere Endoval uses 11,000 or 21,000 lumen mercury lamps for high level illumination. Reversible slip-fitter for mounting horizontally or with 10° tilt.

For residential streets—Revere Urban-Lite makes efficient use of 100, 175 or 250-watt mercury lamps for uniform light in areas where lower intensity light is adequate.

Revere OUTDOOR LIGHTING

Revere Electric Mfg. Co. • 7420 Lehigh Avenue • Chicago 48, Illinois (in suburban Niles)
Long Distance Phone: NIles 7-6060 • Chicago Phone: SPring 4-1200 • Telegrams: WUX Niles

Make Council Minutes Concise

Monterey Park, Calif. methods and format show how

By MARGUERITE L. ALSTROM*
City Clerk
Monterey Park, Calif.

SINCE the dawn of civilization, rulers have entrusted the preparation of state records to scribes in whose accuracy, integrity, and dependability they had faith. The professional genealogy of today's municipal clerk can be traced back through the ages to court officials who inscribed events on clay tablets in cuneiform characters, at the bidding of powerful—but often illiterate—kings. Formerly the word "clerk" meant "man of education," from the Anglo-Saxon *Clerc*, the Latin *Clericus*, and the Greek *Klerikos*. Originally, it referred only to the clergy, but during the Dark Ages the term was extended to include all educated persons.

Most municipal clerks have been quick to see the advantages of electronic data processing, voting machines, microfilmed records, and scientific management. But for some reason, there has been little attention paid to the inescapable and laborious task of recording legislative action. Methods and format bear a close resemblance to those in use when clerks wore powdered wigs, perched on stools at high desks, and inscribed their records with quill pens. In some cases, clerks have forgotten that the purpose of minutes is to provide a record of the legislative assembly's official actions; they have permitted their minutes to expand cancerously, to be all things to all men—a memory—refresher to legislators, a news release to the press, and a memorandum to municipal administrators.

All authorities agree that minutes should consist of what was done by the assembly, not what was said. Robert, in his *Rules of Order*,

* Mrs. Alstrom is also a lecturer in Public Administration, University of Southern California and the author of "Administrative Analysis Techniques," 1956, University of Southern California Press.

Marguerite L. Alstrom

PAGE 13-337

CITY OF MONTEREY PARK
Minutes of CITY COUNCIL
Date of Meeting: 26 MAY 1958
Time of Meeting: 7:30 o'clock P.M.
Place of Meeting: COUNCIL CHAMBERS

INDEX NUMBER		NAME OF MEMBER	MOVED	SECONDED	SPOKE FOR	SPOKE AGAINST	VOTED AYE	VOTED NAY
	ROLL CALL WAS ANSWERED BY COUNCILMEN ANDERSON, SEVERANCE, BRADSHAW, AND IRVINE.							
	THE MINUTES OF MAY 12, 1958 WERE APPROVED.	ANDERSON					X	
		SEVERANCE					X	
		BRADSHAW	X				X	
		IRVINE					X	
F19	A LETTER OF RESIGNATION FROM THE LIBRARY BOARD OF TRUSTEES, WRITTEN BY MRS. MARILEE GREGORY, 1458 FULTON AVENUE, WAS ACCEPTED.	ANDERSON					X	
		SEVERANCE					X	
		BRADSHAW					X	
		IRVINE			X		X	
F17	THE PUBLIC HEARING REGARDING A CHANGE OF ZONE FOR TRACT #18094 AND TRACT #17513 FROM R-A TO R-1 WAS OPENED. THERE WERE NO PROPONENTS OR OPPONENTS. THE HEARING WAS CLOSED.	ANDERSON			X		X	
		SEVERANCE	X				X	
		BRADSHAW					X	
		IRVINE					X	
	THE ZONE CHANGE WAS APPROVED.	ANDERSON					X	
		SEVERANCE					X	
		BRADSHAW	X		X		X	
		IRVINE					X	
S10-A	A CLAIM FROM MR. C. A. PANTALEONI, 231 EAST STARBIRD DRIVE, WAS DENIED.	ANDERSON					X	
		SEVERANCE					X	
		BRADSHAW	X				X	
		IRVINE			X		X	
145A	TWO AGREEMENTS BETWEEN THE CITY OF MONTEREY PARK AND THE SOUTHERN CALIFORNIA EDISON COMPANY WERE APPROVED.	ANDERSON					X	
		SEVERANCE					X	
		BRADSHAW	X		X		X	
		IRVINE					X	
R6146	A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MONTEREY PARK AMENDING THE POSITION CLASSIFICATION SYSTEM OF THE CITY OF MONTEREY PARK WAS ADOPTED BY TITLE ONLY AND FURTHER READING WAS WAIVED.	ANDERSON					X	
		SEVERANCE	X				X	
		BRADSHAW					X	
		IRVINE			X		X	
S25-E	ASSEMBLY BILL #1223 AND AMENDMENT THERETO, SENT TO THE COUNCIL BY ASSEMBLYMAN DON ANDERSON, WERE RECEIVED AND FILED.	ANDERSON					X	
		SEVERANCE					X	
		BRADSHAW	X				X	
		IRVINE			X		X	
	AN ORDINANCE OF THE CITY OF MONTEREY PARK AMENDING SECTION 6401.5 OF THE MONTEREY PARK MUNICIPAL CODE RELATIVE TO THE REGULATION OF PUBLIC DANCES WAS PLACED ON FIRST READING BY TITLE ONLY AND FURTHER READING WAS WAIVED.	ANDERSON					X	
		SEVERANCE					X	
		BRADSHAW	X				X	
		IRVINE			X		X	
R6147	A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MONTEREY PARK ALLOWING CERTAIN CLAIMS AND DEMANDS AND SPECIFYING THE FUNDS OUT OF WHICH THE SAME ARE TO BE PAID WAS ADOPTED BY TITLE ONLY AND FURTHER READING WAS WAIVED.	ANDERSON					X	
		SEVERANCE	X				X	
		BRADSHAW			X		X	
		IRVINE					X	
	THE MEETING WAS ADJOURNED TO JUNE 2, 1958, AT 7:30 O'CLOCK P. M.	ANDERSON					X	
		SEVERANCE			X		X	
		BRADSHAW					X	
		IRVINE	X		X		X	

Rod Irvine
MAYOR

ATTEST:
Marguerite L. Alstrom
CITY CLERK

CHOOSE

SURE-POWER

GENERATING SETS

...the emergency power with electric utility quality

MUNICIPAL PROTECTION — Rescue and relief operations are often centered in municipal buildings when an area is temporarily crippled by disasters. This 100-kw set stands ready to furnish power at the county court house if emergency hits El Paso, Texas.

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BG-31

makes this point more than once. At the 1956 conference of the National Institute of Municipal Clerks, Colonel Henry B. Curtis, City Attorney of New Orleans and a former president of the National Institute of Municipal Law Officers, pointed out that adherence to proper procedures would eliminate not only misunderstandings but also possible litigation. At the 1957 conference of the National Institute of Municipal Clerks, Arthur Morris of Los Angeles reiterated that the record should include only what is done, with discussions conspicuously absent. City Clerk Ruth C. Kemp of Berkeley, Calif., in a paper presented at the California City Clerks' Institute in 1954 enumerated items that should not be included in the minutes, among them speeches, discussions, statements; the full text of communications or reports; the text of ordinances or resolutions; argument, explanation, commentary, or elaboration; acknowledgments, invitations, congratulations, condolences, or memorials; and departmental reports.[1]

Wordiness and repetitious phraseology add to bulk, at the same time detracting from readability. The endless duplication of members' names and votes is one of the most irksome features. Lengthy narratives are so boring to read that errors may not be detected. Mistakes are difficult to correct without retyping an entire page.

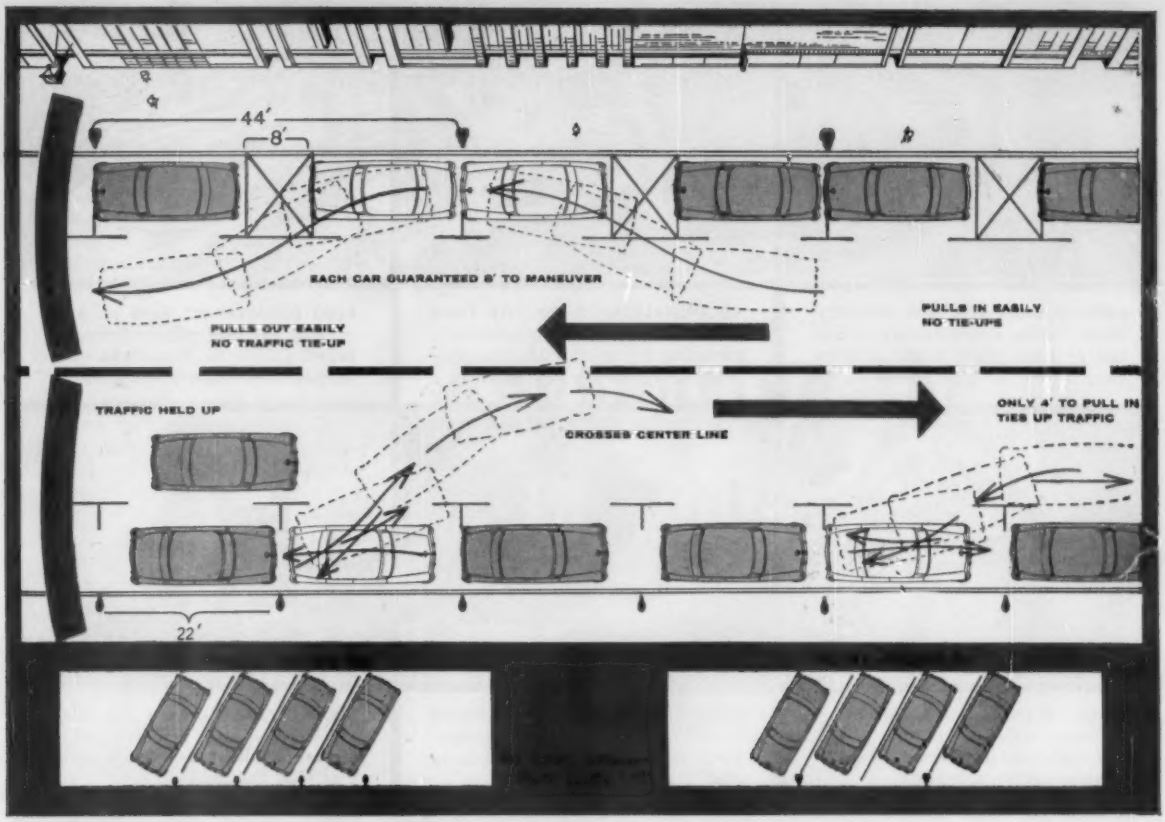
Essentials

What are the essentials that must be included in minutes? The same authorities above have expressed their ideas on this matter, also. Summarized, these essentials comprise the following:

- Name of the organization or assembly
- Date, time, and place of the meeting if not always the same
- Kind of meeting (regular, special, or adjourned)
- Names of members absent and of members present
- Statement of action taken on minutes of the last previous meeting
- Motions (unless withdrawn) and points of order and appeals whether sustained or lost, with the name of the person who introduced each motion, but not that of the seconder, and indication as to whether it passed or failed. (A record of ayes and noes is not necessary, except at the request of a member)
- Titles of ordinances and resolutions.

In addition to these essentials, a

HOW TO MAKE THE MOST OF EXISTING PARKING SPACE



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The drawing above shows clearly how Dubl-Dual Parking Meters insure eight full feet between cars while single meters often reduce space to only four feet. Note too how traffic flows more easily and safely when cars are assured adequate room to maneuver into and out of the parking spaces.

But greater utilization of parking space is only part of the Dubl-Dual story. Since Dubl-Duals are two separate meter mechanisms in a single case, initial cost is lower. And installation costs are reduced because only half as many meter stand installations are required. Dubl-Duals also reduce collection and inspection time . . . every other meter "stop" is eliminated.

There are lots of sound, proven reasons why your community should investigate the economy and efficiency of Dubl-Dual metering. Send the coupon for complete details in the new, booklet on Dubl-Dual Parking Meters. Dual Parking Meter Co., Subsidiary of Rockwell Manufacturing Co., Pittsburgh 8, Pa.

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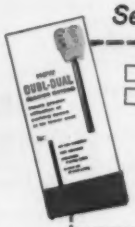

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☐ Please have your representative call.

Name_____ Title_____

City_____

State_____

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GROWTH CALLS FOR NEW PROJECTS: water mains, storm sewers, drainage systems. AERO helps advance construction starting dates.

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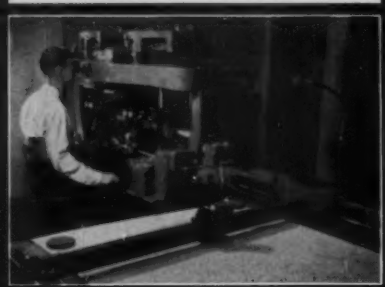
AERO HAS THE PLANES AND PILOTS. Our fleet of 35 aircraft is flown by men who've been with us an average of 12 years.



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file index number referring to each document is highly desirable. Not only ordinances and resolutions should be so indexed, but also communications, reports, and petitions.

Specificity is a quality that should be avidly sought. Names, dates, addresses, figures, and facts should be complete and accurate. But equally vital is the development of simplified, streamlined procedures. The principles of work simplification can be applied to the preparation and use of the minutes of a legislative body with as much facility as to other processes. Prepared forms are one way to improve the minutes procedures.

Forms Developed

In Monterey Park, we have developed mimeographed forms for recording proceedings (*see illustration*) which greatly eases the work of the minutes clerk. Prior to a council meeting, the clerk types the subjects from the agenda on this form. During the meeting, all action is indicated by placing checkmarks in the appropriate boxes; adopted, approved, denied, granted, received and filed, tabled, placed on first reading, referred to the city manager. Another row of boxes lists the councilmen's names with places to check to indicate their action: moved, seconded, voted aye, voted nay. There is also a space indicating "See Supplementary Notes," which flags the attention of the transcriber to additional notes in case such are necessary.

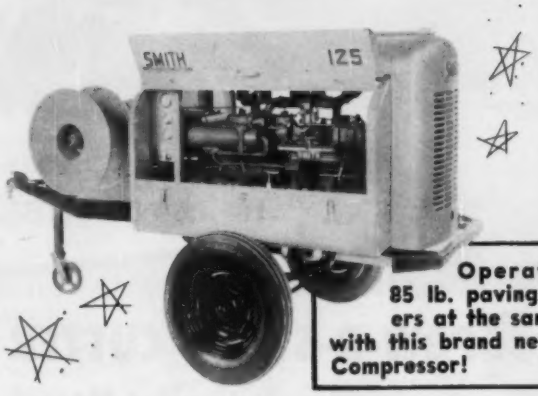
The form to which the notes are transcribed is essentially similar to that on which the notes were taken, except that the council's action is written out rather than being indicated by check-marks. Individual members' action on each motion, however, is permanently recorded by check-marks in appropriate boxes, leaving nothing in the body of the minutes except a crisp, definite record of what transpired at the meeting. Repetitive titles were eliminated by making the title a part of the sentence itself; each new topic is written in capital letters, and the sentence constructed in the passive voice (i.e., was passed, was adopted, was granted, was denied, etc.). A column at the left side of the page is used for index reference numbers.

Much information that was previously written out each time is now included in the pre-printed heading, which includes the name of the legislative body, with spaces to type in the date and place of the meeting.

The mechanics of this procedure are simple. A plate was made of the ruled form, and the form was printed therefrom on mimeograph stencils. The minutes clerk types the minutes on one of these imprinted stencils, and enough copies are produced to attach to the councilmen's copies of the agendas for the next meeting. After approval, any necessary corrections are made on the same stencils and a supply of copies is duplicated, including the two official copies which are signed and bound in the minutes books.

This form overcomes many of the problems hitherto encountered. It forces the use of specific, clear language, and encourages brevity. Errors stand out glaringly, yet are easy to correct. Index references are seen at a glance, as are members' voting records. Recurring items, data, words, and phrases are preprinted so that only variable information need be inserted. Items are arranged in identical sequence to facilitate transcription. Sufficient margin is allowed on the left side to permit binding. The form is correctly aligned for easy typing, permitting tabulation and

Announcing the New Smith 125



Operate two 85 lb. paving breakers at the same time with this brand new Smith Compressor!

This newest member of the Smith family of compressors is built with a heavy duty industrial type 6 cylinder engine. Three cylinders are for power; three for compression. The Smith 125 is a trouble-free compressor with a minimum af gaskets and gadgets.

The Smith "Governair" regulates air supply to air demand for economy and long life. You have lower first cost, lower operating cost and lower maintenance cost because of sound engineering and simple, compact design.

Write today for complete details on the new Model 125-P and also other Smith Compressors in portable and stationary models from 45 to 220 cfm.

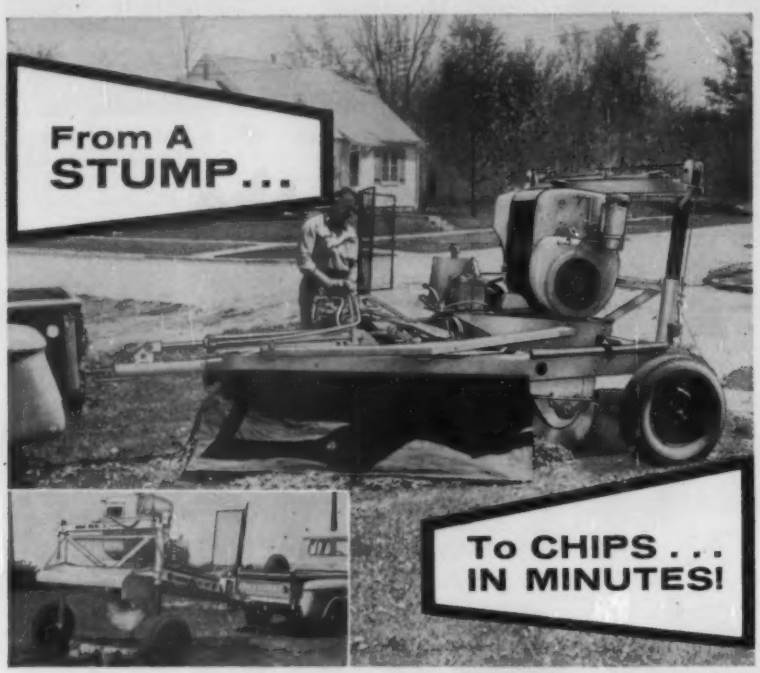
GORDON SMITH & COMPANY, INC.

425 College Street, Bowling Green, Kentucky

making horizontal adjustments unnecessary.

The speedy transcription thus made possible enables the staff to index minutes on the day after the meeting, which insures that inquiries will be answered promptly. Every action taken is indexed, with volume and page of the minutes indicated, as well as the date of action. This office stresses the desirability of cross-indexing, because an inquiry is seldom in the exact words of the minutes record. Successive entries in the index provide a complete story of the matter, from its original introduction to its final disposition.

Although this format furthers economy by saving appreciable amounts of time and paper, the most important contribution it makes is that of insuring accuracy. The minutes of past years contain many ludicrous mistakes and omissions which slipped by unnoticed in the garrulous paragraphs. Such errors could not occur now because every item is in the spotlight. In addition, the revised form has occasioned much favorable comment because of its streamlined readability.



Vermeer POW-R-STUMP CUTTER

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Tree Service men and park, recreational and municipal officials all over the country are praising the Vermeer POW-R-STUMP CUTTER. More than an unusual new machine, the Vermeer POW-R-STUMP CUTTER is a revolutionary, new *principle*, that once and for ever has taken the cost, the time and the drudgery of labor out of stump-removal! "From a stump to chips . . . in minutes," is more than a byword, too, it's a fabulous fact. The Vermeer POW-R-STUMP CUTTER removes the largest tree stump—rips it to shreds to a depth of ten inches below the surface of the ground—all in a matter of minutes. One man, only, is required for the whole operation. And when the job is done there's no stump left to be hauled away, no gaping hole to be filled, no rutted lawns, no damaged curbs, driveways or sidewalks.

This is just part of the remarkable story about the Vermeer POW-R-STUMP CUTTER. To get all the details, write—today—for the colorful new FREE folder, just off the press.

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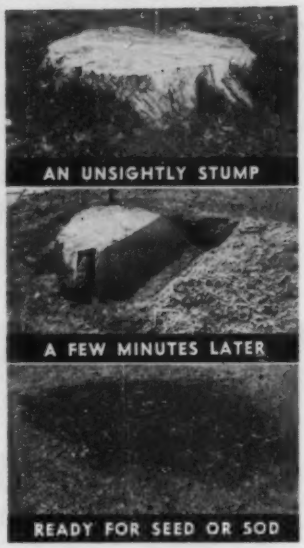

Other Potential States

WITH ALASKA'S admission into the Union, the only remaining incorporated Territory will be Hawaii, whose governor is appointed by the President but whose citizens elect their legislature and a nonvoting delegate to Congress. One former Territory, Puerto Rico, has been since 1952 a self-governing Commonwealth associated with the U. S. and represented in Washington by an elected, nonvoting resident commissioner.

Incorporated Territories are understood to be in transition to eventual Statehood, while unincorporated Territories are simply U. S. property. The latter may be organized or unorganized, depending upon whether Congress has provided a measure of self-government. American Samoa, for which the President appoints a governor, and the Canal Zone, which is administered by the Department of Defense, are in the latter category.

The organized, unincorporated Territories are:

Guam, which elects a legislature but has a governor appointed by the President; and the ***Virgin Islands,*** which also have an appointed governor and an elected legislature.

The U. S. also administers a number of Pacific Islands formerly under Japanese jurisdiction. Canton and Enderbury Islands are jointly administered with Great Britain, while the Caroline, Mariana, and Marshall Islands are under a United Nations trusteeship.

The District of Columbia, with a population larger by far than any U. S. Territory or possession, is governed by Congress and three commissioners appointed by the President.

Municipal Parking Lots

A PARKING LOT survey among Virginia cities brought response from 26 cities. Nine reported no municipally owned lots. Fifteen of the cities own 60 parking lots of which 39 are metered. The survey was made by the League of Virginia Municipalities.

Using salt for ice?

For more effective results, add SOLVAY CALCIUM CHLORIDE

The use of calcium chloride-salt mixtures for ice control have these advantages over straight salt...

1. Effective at all temperatures and humidities. The calcium chloride speeds melting even at temperatures and low humidities where salt is ineffective . . . provides the moisture salt needs to act.

2. Quicker acting. Calcium chloride liberates heat as it melts ice, which helps salt work faster.

3. Store better in bulk—when storage area is covered.

4. More economical to use. When you combine salt *and* SOLVAY Calcium Chloride, applications can be lighter and less frequent. This reduces chemical consumption.

Abrasives treated with SOLVAY Calcium Chloride instantly skidproof icy surfaces—hold fast in wind and traffic at all temperatures. Won't freeze in piles—spread easily.

Small quantities of straight SOLVAY Calcium Chloride rapidly melt and loosen thin films of sleet or glare ice. Leave no white residue on pavements, cars.

Write for booklets—"3-Way Highway Ice Control with SOLVAY Calcium Chloride". . . "How to use Chemical Mixtures in Winter Maintenance" . . . "Melt Ice Faster with Mixtures."

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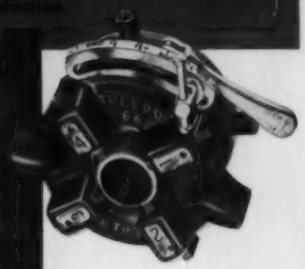

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The No. 66 and 44 make threading easy. Floating scroll assures longer wear—only controls thread size. Pipe stays centered—held by elongated jaws in centering device. Threads over, under and standard size threads.

2 7C Vise Stand

NO MORE KNUCKLE-BUSTING—Easy to carry—set up, won't fold, the 7C Chain Vise holds pipe ⅛" to 5". Compound leverage applied to chain requires minimum turns on screw. Tightening handle on top . . . 3 pipe benders over rear leg. 7Y with yoke vise ⅛" to 2½". Easy to convert from yoke to chain, chain to yoke.

3 4 Pipe Cutters 1/8" to 2"

NEW FROM HOOK TO HANDLE

New form-fitting handle, frame, sliding block and replaceable slide plate add up to make these cutters the best buy of the year. They hook on pipe easily—track perfectly—cut cleanly. 4 models to choose from—wide rollers for power.

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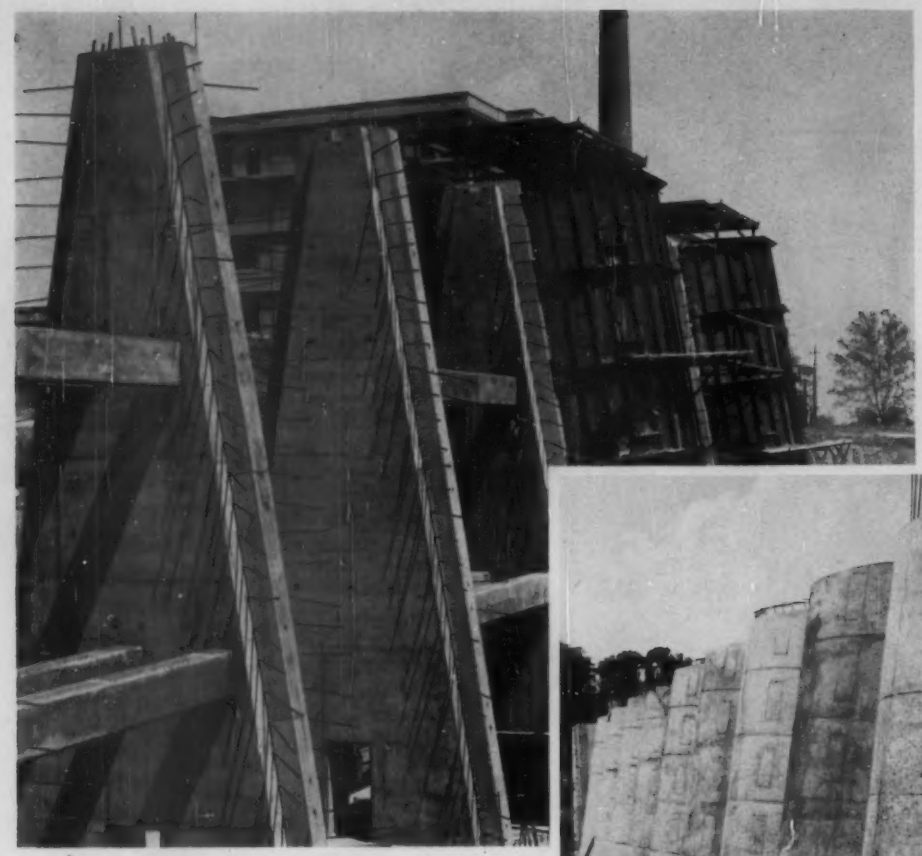


LACLEDE STEELS reinforce unusual new water storage basin

Nine hundred and twenty-eight tons of Laclede multi-rib round reinforcing bars and other Laclede steel reinforcement are being used in a unique type of water storage basin now under construction at the Chain of Rocks Station, St. Louis City Water Department.

This will be an underground clearwater basin, where approx. 10,000,000 gals. of purified water will be stored before distribution to users in the St. Louis area. Unusual feature of the basin is the construction of its walls, formed by 60 huge cylindrical concrete shells, interconnected so that inspectors may examine the interior of the walls for the entire length.

Developed by E. E. Easterday, chief engineer for the St. Louis water department, this patented design provides a virtually foolproof barrier against contamination by ground water seepage.

Approximately 11,500 cubic yards of concrete will be used in the new basin.

General contractor on the project is G. L. Tarlton Contracting Co., St. Louis, and engineers are the Water Department, City of St. Louis.

LACLEDE

LACLEDE STEEL COMPANY

SAINT LOUIS, MISSOURI ◆ Producers of Steel for Industry and Construction

Spacing of the various units at Boulder's new sewage treatment plant permits the addition of extra units as the city grows in population.

New Sewage Treatment Works for Boulder, Colo.

Complete treatment facility constructed on a new site replaces outdated primary plant

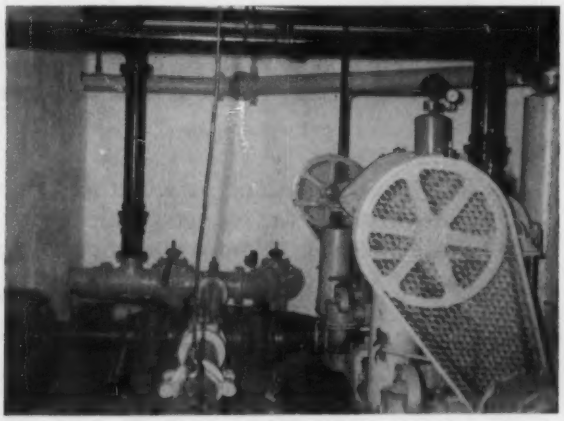
By G. R. SCOTT
Black & Veatch
Consulting Engineers
Kansas City, Mo.

BOULDER, Colo. solved its sewage treatment problem resulting from rapid growth since 1950, by constructing a complete treatment plant and new outfall sewer. The outfall conveys sewage to the plant located on a new site about one mile east of the present city-limit line.

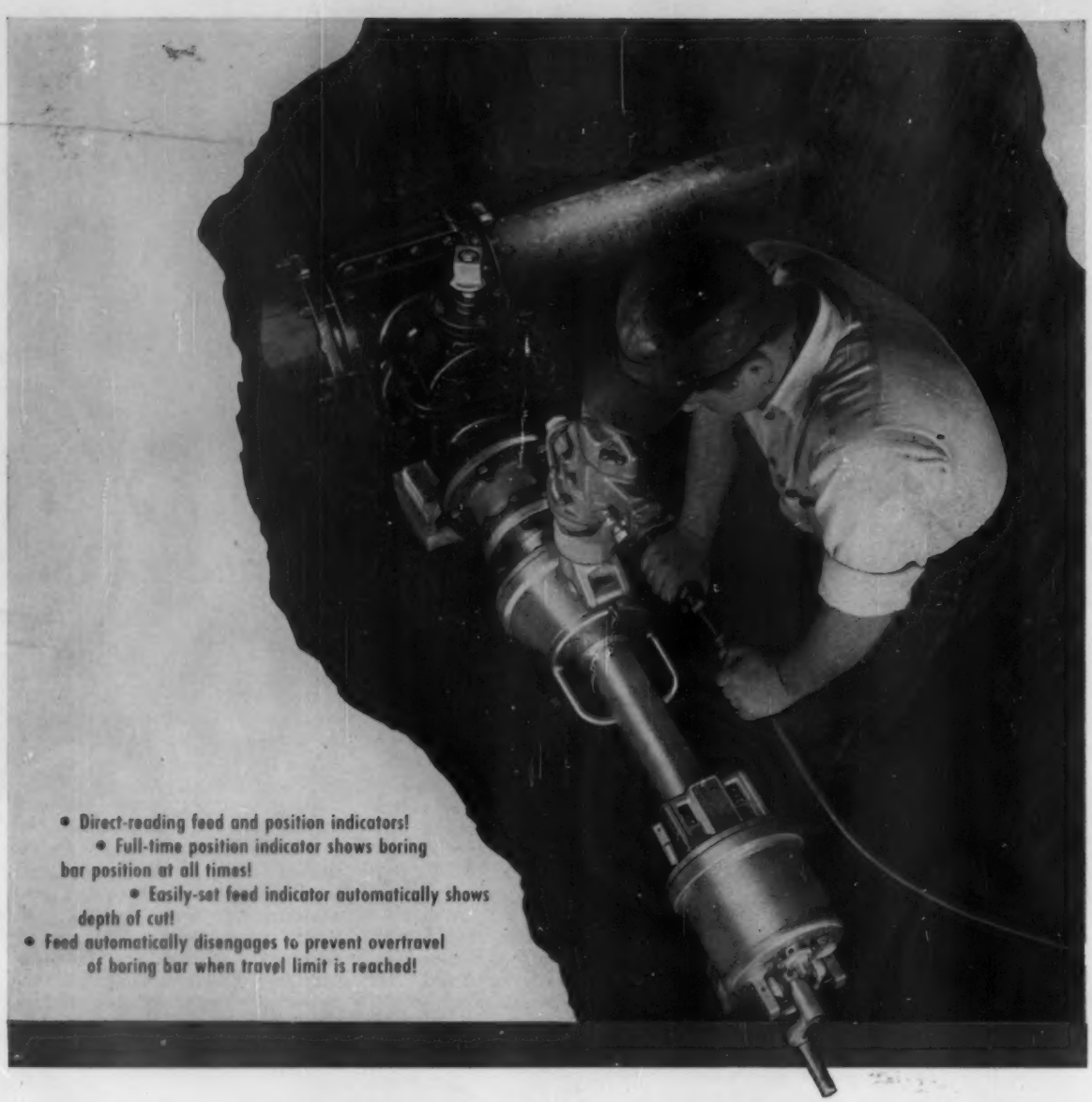
The old plant, now partially surrounded by housing and commercial developments, was built in 1934 for a population of 15,000 that contributed 5.0 mgd of sewage. It was designed for primary treatment with provisions for the addition of chemicals to improve sedimentation during periods of low flow in Boulder Creek. Chemicals were never used to any great extent for this purpose, except for the addition of chlorine to the plant effluent in recent years to reduce the number of bacteria reaching the stream.

Boulder Creek, the receiving stream, does not have sufficient flow to provide adequate dilution for the effluent of a primary treatment plant, nor does such an effluent meet with the requirements of the State Health Department. State regulations require that "no discharge which contains human excreta shall be permitted to flow in the streams, lakes or other waters of this state, unless . . . the number of coliform

The grit basins and screens, built to handle sewage from a population of 60,000, eliminates the need for expansion when other plant units are added.



Two 30-gpm plunger-type sludge pumps handle all raw sludge pumping. Centrifugal pumps handle sludge mixing and circulation through the heat exchanger.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• Feed automatically disengages to prevent overtravel of boring bar when travel limit is reached!

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Machine!

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count in such discharges shall not average more than one thousand per milliliter." State regulations also provide that the five-day BOD of effluents discharging into waters used in the state as a source of domestic public water supply should not exceed 50 ppm.

Studies made in 1955 indicated that the population then being served was 26,500 persons; 8,000 of whom were students of the University of Colorado. Estimates of anticipated future growth led to the recommendations that the outfall sewer be large enough to carry a maximum flow of 14.5 mgd from a population of 60,000; that the treatment plant be constructed now with a capacity to treat the sewage from a population of 40,000; and that the plant be designed to permit increasing capacity by the construction of additional units as needed.

Design Features

The separate sludge-digestion-type plant provides secondary treatment with a high-rate trickling filter. Sewage is first measured by a Parshall flume, and then flows through duplicate grit basins, screens, a primary sedimentation basin, filter and final sedimentation basins. In addition, plant effluent is chlorinated. The grit basins, screens, and main plant piping have a capacity to treat flows of 15 mgd. Flows used in design of the other units of the plant are:

	mgd
Minimum day	2.6
Average day	4.3
Maximum day	7.5
Maximum hour	9.5

Three turbine-type pumps of 900 gpm each recirculate sewage through the plant. They take suction from the underflow of the final sedimentation basin and discharge into the raw sewage entering the primary sedimentation basin. The intent is to maintain minimum flows through the filter at rates of 12 mg per acre per day. This is accomplished automatically by means of contacts on the metering equipment. Filter loading under design conditions amounts to 2,850 pounds of 5-day BOD per acre-foot.

Two sludge digestion tanks provide a total capacity of 120,000 cubic feet. The primary tank contains three mechanical mixers, each having a capacity of 5,000 gpm. The mixers move material from the top of the digestion tank through draft tubes and discharge it tangentially at the bottom to give the entire contents a rotary motion in addition to providing for vertical mixing.

A floating cover on the secondary digestion tank provides storage capacity for 12,000 cubic feet of gas. An external heat exchanger using sludge gas as fuel, and through which the sludge from either tank can be circulated, supplies the necessary heat for proper digestion. Normally, heat will be added only to the primary tank and to the raw sludge.

Control House

A two-story control house, located between the two digestion tanks, houses the raw sludge pumps, sludge circulating pumps, sludge heater, laboratory and office. A separate building near the final sedimentation basin houses the circulating sewage pumps and chlorinator.

The various plant units, their size and type of equipment are described in the accompanying table.

Cost of construction totalled $953,072, of which $814,102 represents plant construction and $138,970 sewer construction.

Bond Financed

The City of Boulder financed the major portion of the work through a $1,100,000 sewer revenue bond issued January 1, 1957 at a net interest rate of 3.89%. The bonds are additionally secured by unpledged water utility revenues. The federal government, under Public Law 660 provided a grant of $250,000 toward the work. Funds for operation and bond retirement will, in general, be obtained from sewer service charges.

City officials directly concerned with the program include M. Don Harmon, city manager; W. C. Light, director of Public Service; C. M. Dixon, director of Water and Sewer Utilities; and E. M. Hamilton, superintendent of sewage treatment.

Carlson Plumbing & Heating Company of Boulder constructed the outfall sewer and Carrothers Construction Co., Paola, Kansas were general contractors for the plant. Black & Veatch, Consulting Engineers, Kansas City, Mo., prepared the report, and designed and supervised construction.

Plant Equipment Inventory

Item	Manufacturer	Size or Capacity
Sludge metering and circulating sewage pump controls	Bristol Company	
Grit basins	Dorr-Oliver Inc.	2 units 14' x 14' x 3.5' deep
Mechanically cleaned screen	Chicago Pump Co.	15 mgd
Primary sedimentation basin	Link Belt Company	125' diam. x 7' sw (side water) depth
Trickling filter, underdrains	Texas Vitrified Pipe Co.	
Trickling filter, distributor	Dorr-Oliver Inc.	175' diam.
Final sedimentation basin	Link Belt Co.	100' diam. x 9' sw depth
Digestion tanks		2 units 55' diam. 60,000 cu ft capacity each
Sludge mixing	Dorr-Oliver Inc.	3 units @ 5,000 gpm
Gas holder	Dorr-Oliver Inc.	12,000 cu ft
Circulating pumps, centrifugal bladeless	Fairbanks-Morse & Co.	2 @ 300 gpm
Sludge heater	Walker Process Equipment	1,000,000 BTU per hr
Sludge drying beds		Sand beds with underdrains 50,000 sq ft in 14 beds
Raw sludge pumps, plunger type	Carter	2 @ 80 gpm
Recirculation pumps turbine type	Fairbanks-Morse & Co.	3 @ 900 gpm
Chlorine equipment	Fischer & Porter Co.	1,000 lbs. per day

Modern Water Rates

(Continued from page 95)

3. The Company does not operate sewer services, but for a fee collects the charges for the city. These charges are added on to the customer's water bill. Charges vary according to type:—residential $1.80 per month per living quarters; commercial and industrial—$4 to $20 per month per customer depending on the consumption of water.
4. Bills are rendered on Burroughs Sensimatic automatic billing equipment.
5. Water rates were last revised in 1950 at which time they were increased by 30%. Sewer charges were last revised in 1956

C. W. KAPP
Manager
Blytheville Water Company

BRUNSWICK, GA.

Rates Per Month

Gallons	*Per 1,000 Gallons*
4,000	Minimum
0 to 15,000	$ .34
15,000 to 30,000	.30
30,000 to 150,000	.245
150,000 to 300,000	.205
300,000 to 450,000	.17
450,000 to 600,000	.135
Excess	.115

Minimum Monthly Charges

Meter Size (in inches)	*Charges*
⅝ to 1	$1.40
1 ¼ to 1½	2.80
2 and larger	Depending on nature of service, etc.

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges*
3,000	400	$1.40
5,000	667	1.70
10,000	1,333	3.40

PAUL KILLIAN
Director of Finance
Water Department

General Data

Population served		26,000
Miles of main		98.8
Services	*Number*	*% Metered*
Domestic	6,184	100
Commercial	798	100
Others	21	Flat
Supply—deep well		
Treatment—Chlorine		
Plant capacity		7.5 mgd
Average demand		3.5 mgd

Remarks

1. The city provides service line to property line only. None of the cost of new mains is borne by the city. On whole new subdivisions, the developer of the subdivision pays all costs on installation, with cutoff and meter boxes. The city furnishes meters as the houses are occupied.
2. Limited sewer services are operated by the company.
3. This company was taken over by the City of Brunswick in 1955.
4. No automatic billing equipment is used. Bills are rendered by Finance Department.

BUHL, IDAHO

Minimum Charges Per Month

Meter (inches)	*Charges*	*Gallons Allowance*
¾	$2.00	4,000
1	5.15	10,500
1½	11.45	24,000
2	32.00	66,500

Rates for Water Used Above Minimum Per 1,000 Gallons

Next 14,000 gallons	$ .08
Next 20,000 gallons	.07
Excess	.06
Unmetered Rate for Chlorinated Ditch Water	$2.80 per month

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges*
3,000	400	$2.00
5,000	667	2.08
10,000	1,333	2.56

General Data

Population served		2,780
Miles of mains		25
Services	*Number*	*% Metered*
Domestic	1,100	95
Commercial	125	100
Supply—deep well		
Treatment—chlorination		
Plant capacity		4 mgd
Average demand		3 mgd

Remarks

1. City provides service lines to property line only.
2. Mains extended by the city into new areas at its own expense.
3. Date of adoption of current rates: 1951.

J. C. HOLMES
Water Superintendent

DOWAGIAC, MICH.

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
First 1,000	$ .325
Next 2,000	.18
" 7,000	.14
" 7,000	.12
" 13,000	.09
Excess	.07

Minimum Quarterly Charges

Meter Size	*Charges*
⅝	$ 3.25
¾	4.00
1	5.00
1½	7.50
2	12.00
3	20.00
4	30.00
6	45.00
8	60.00

Remarks

Sprinkler System Charges

Meter Size (in inches)	*Charges (per quarter)*
4	$ 7.50
6	7.50
8	12.00

These charges are in addition to the meter service charge, if any, and the water use charge.

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charge*
9,500	1,200	$ 3.61
15,000	2,000	5.05
30,000	4000	8.25

General Data

Population served		8,000
Miles of main		6
Services (100% metered)		1,894
Supply—Wells		
Treatment—None		
Plant capacity	2,400 gallons per minute	
Average demand	600,000 gallons per day	

Remarks

1. Service lines provided to property only.
2. Board of Public Works bills and collects water charges. Dowagiac has no sewer service charge.
3. Automatic billing equipment is not used.

HAROLD F. WAGNER
Superintendent
Board of Public Works

HEMET, CALIF.

Rates Per Month

Cubic Feet	*Per 100 Cubic Feet*
First 2,000	$ .18
Next 3,000	.16
" 10,000	.13
" 10,000	.11
Excess	.09

Minimum Monthly Charges

Meter Size (in inches)	*Charges*	*Cubic Feet*
⅝ to 1½	$3.60	1,300
2	3.50	1,600
3	4.00	2,000

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges*
3,000	400	$3.00
5,000	667	3.00
10,000	1,333	3.00

General Data

Population served		4,800
Miles of mains		30
Services	*Number*	*% Metered*
Domestic	1,655	94
Commercial	192	95
All others	8	95
Supply—Wells		
Treatment—chlorination as required		
Plant capacity		2 mgd
Average demand		1.11 mgd

Remarks

1. Service lines provided and maintained by the city to the property line only at a cost to customer of $60 for ⅝ or ¾- inch meter, $75 for 1-inch, others at cost.
2. City provides none of the cost of new mains at it own expense. Some cost borne by the city when larger mains installed.
3. Bills are processed on National Cash Register accounting equipment. The same bill also carries refuse collection charges, but not the sewer service charge.
4. These rates were adopted in January 1957 and represent a 30% increase.

MORELL M. FULLER
Superintendent
Water Department

HOULTON, MAINE

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
First 2,000	$ .20
Next 3,000	.15
Next 90,000	.10
Excess	.08

Minimum Quarterly Charges

Meter Size (in inches)	*Charge*
⅝	$3.00
¾	4.50
1	5.00
1½	15.00
2	25.00
3	50.00
4	75.00
6	100.00

General Data

Population served		7,500
Miles of main		24
Services	*Number*	*% Metered*
Domestic	1,606	68
Commercial	259	43
Others	8	63
Supply—surface and ground		
Treatment—Chlorine		
Plant capacity		5.7 mgd
Average demand		1.1 mgd

Typical Quarterly Charges

Gallons	*Cubic Feet*	*Charges*
9,000	1,200	$3.00
15,000	2,000	4.00
30,000	4,000	7.00

Remarks

1. City provides service lines to property only.
2. New mains are provided at a cost of $400 per customer.
3. Both water and sewer services are operated by the Houlton Water Company, with sewerage charges at $10 per house per year. The company does not bill and collect its charges.
4. The present rates were adopted in 1915 and are in need of revision.
5. Borroughs automatic billing equipment is used in billing the customers.

PAUL W. COLEMAN
Superintendent
Houlton Water Company

JACKSON, TENN.

Rates Per Month

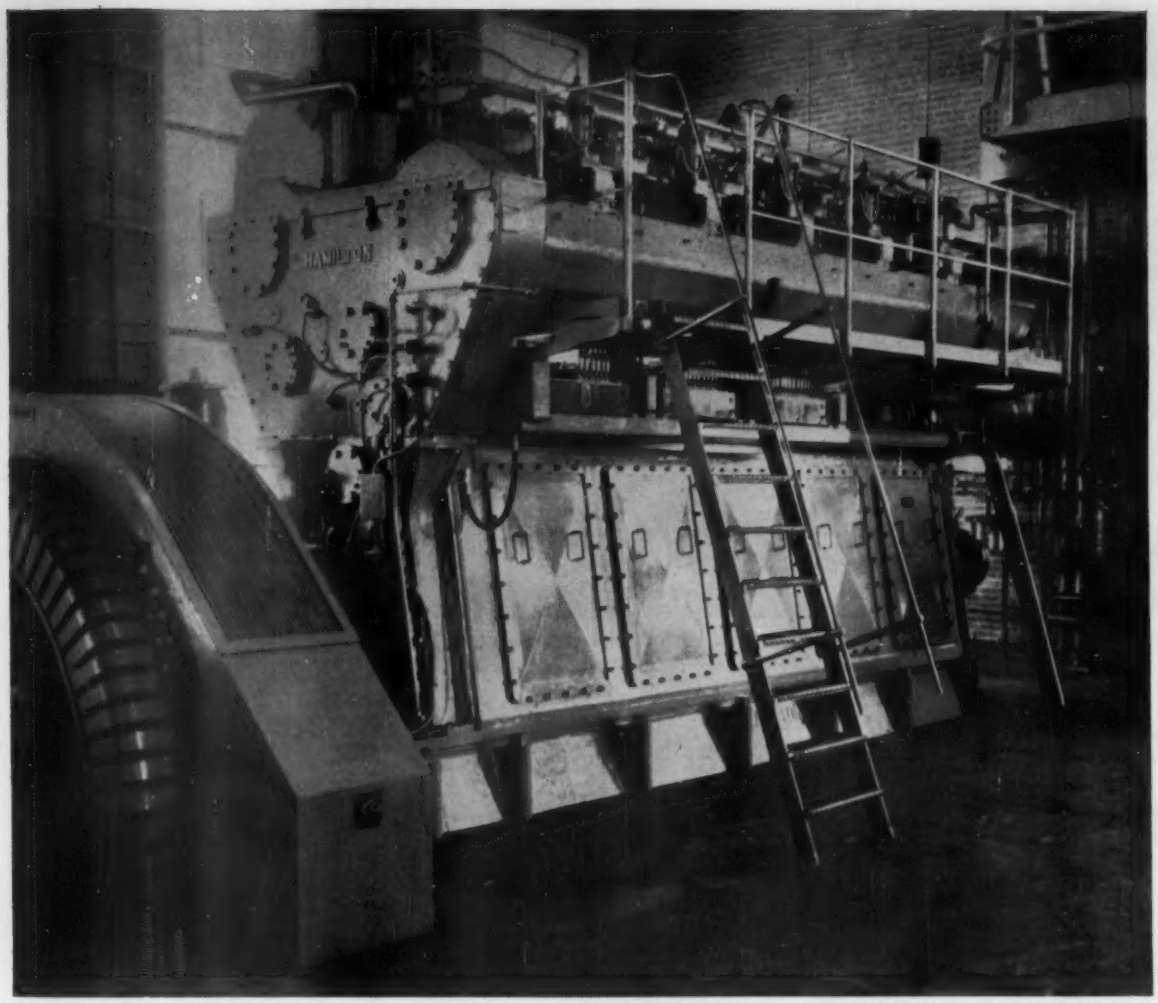
Gallons	*Per 1,000 Gallons In City*	*Outside*
First 3,000	$ .50	$1.00
Next 4,000	.45	.50
" 43,000	.32	.35
" 150,000	.27	.30
" 300,000	.22	.25
" 500,000	.17	.20
Excess	.12	.15

Minimum Monthly Charges

Meter Size (in inches)	*Charges In City*	*Outside*
¾	$1.50	$3.00
1	3.00	5.00
1½	5.00	Negotiated
2	10.00	"
3	20.00	"
4	40.00	"
6	75.00	"
8	135.00	"
10	210.00	"
12	300.00	"

Multiple Dwelling Charges

To calculate multiple-dwelling bills charged through one meter: (1) Divide total gallons by the number of



Hamilton Model 521 SA diesel engine shown above is capable of burning the heaviest bunker oil with absolutely clean exhaust.

Pay for a quarter-million-dollar diesel unit with fuel savings alone!

That's what the City of Edmundston, New Brunswick, Canada, will do in 6 short years in operating its new 8,815,000 kwhr per year generator. The reason is the fuel-burning efficiency of its Hamilton-made Diesel 521 SA engine. Because of its unique Hamilton-designed rotary exhaust valve system, this engine is capable of operating on bunker-C residual fuel at only 11.6c per gallon—as compared with 18.6c for distillate fuels required with ordinary diesels.

Last year this Hamilton Diesel-powered generator effected operating fuel cost savings of $44,000. And further savings are expected following installation now under way of a hot water heat exchanger in the engine exhaust. Eventual cost per kwhr is expected to be as low as 6.5 mills. Light fuel is employed only while starting, and for about 20 minutes before shutting down to flush fuel lines and injectors. Heavy residual oil is used for all other normal operations. Write today for complete details on how Hamilton's Model 521 SA Diesel can bring you substantial savings.

Hamilton Division Hamilton, Ohio

BALDWIN · LIMA · HAMILTON

Diesel engines • Mechanical and hydraulic presses • Can making machinery • Machine tools

housekeeping units. (2) Calculate the charge on the basis of rates shown above. (3) Multiply this by the number of housekeeping units. (4) Each housekeeping unit will be subject to the minimum charge per ¾-inch meter.

Fire Protection

Private fire hydrants and sprinkler system connections will be installed entirely at the expense of the user.

Tapping Fees

Size of Tap (in inches)	*Charges Inside City*	*Outside*
¾	$50.00	$350.00
1	90.00	375.00
1½	150.00	Negotiated
2	200.00	"
Larger	Negotiated	"

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges Inside City*	*Outside*
3,000	400	$1.50	$3.00
5,000	667	2.40	4.00
10,000	1,333	4.20	6.05

General Data

Population served 35,000
Miles of mains ..... 110 miles, 301 feet
Services— (100% metered)—Jackson Water Department does not have information on number of services. About 8,600 bills are issued each month.
Supply—deep wells
Treatment—chlorine and chemically treated hydrated lime.

Remarks

1. Where mains and laterals are laid by the subdeveloper there is a charge of $10 for each connection. Service lines are provided to the property only, and are paid for by the tapping fee. This same fee entitles the property owner to have his main extended 100 feet if necessary. Any extension beyond this 100 feet will be at the latter's expense. The city bears none of the costs of new mains.
2. The city's water department operates both water and sewer services, and bills and collects the sewer charges along with the water charges.
3. The Central Service Association of Jackson makes up the bills for the department.
4. Water and sewer rates were last revised in 1955, at which time they were increased (water rates) 16.33%. Water use was not affected by the rate adjustment.

J. L. Danuiels
Superintendent
City Water Department

LACONIA, N. H.

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
Up to 500	Minimum
501 to 5,000	$.13
5,001 to 100,000	.12
Excess	.10

Minimum Quarterly Charges

Meter Size (in inches)	*Charges*
1½	$3.50
2	4.00
3	6.00
6	15.00

Unmetered water service is also available. The initial charge per customer unit with this service is $3.50 per quarter for the first faucet, plus additional charges for other fixtures.

Fire Protection

Pipe size (in inches)	*Charges (per quarter)*
4	$3.00
6	7.00
8	12.50
10	19.50
12	$28.25

In addition, 2c for each sprinkler head connected to fire line, and $10 for each hydrant owned by customer, per annum.

Typical Quarterly Costs

Gallons	*Cubic Fee*	*Charges*
9,000	1,200	$4.55
15,000	2,000	5.75
30,000	4,000	8.75

General Data

Population served 13,816
Miles of mains ..... (approximately) 50

Services	*Number*	*% Metered*
Domestic	2,577	88
Commercial	893	87

Supply—Pagus Bay and Lake Winnepasaukee
Treatment—chlorine
Plant capacity ..... 3.9 mgd
Average demand ..... 1.0 mgd

Remarks

1. Laconia Water Works provides no part of service line, and none of the cost of new mains.

Operator George A. Miller, Sr., has plenty of visibility to keep his broom hugging the curb as he easily makes a tight turn with his Model 40 Austin-Western sweeper at a Danville street corner.

Austin-Western Sweeper saved $4950 in 12 months for Danville, Pa.

—says City Engineer F. O. Yohn, Danville, Pa.

Danville, Pa., replaced its push cart, broom and street sweeper with a new Model 40 Austin-Western sweeper. It was City Engineer F. O. Yohn who selected the A-W for Danville after a careful study of all motorized sweepers.

Compares sweeping costs

Mr. Yohn says, "I kept a careful check on costs with A-W sweeper and compared them with previous costs of sweeping by hand. The Model 40 Austin-Western sweeper saved us $4950.10 in 12 months!

"I particularly like the visibility and maneuverability afforded by the Austin-Western. It's easy for the operator to see his broom at all times. He can steer and sweep closer to curbs and parked cars. It's hard to see over the hopper in front on competitive models.

All other sweepers obsolete

"As far as Danville's concerned, Austin-Western's superior performance makes all other sweepers obsolete!"

There are two A-W sweepers available to meet your precise needs—Model 40 (2 cu. yd.) and Model 60 (4-plus cu. yd.) A-W sweepers go anywhere to get dirt everywhere—cities and towns, parks and zoos, highways, factories and airports.

Learn today why the full vision front steer, 3-wheel design, maneuverability and rear dump features of A-W sweepers are so popular! See your nearby A-W distributor or write us direct.

Operator demonstrates rear dump feature, hydraulically controlled from driver's seat, that lets you dump and drive away in less than a minute.

Austin 100th YEAR Western
CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON
Power graders • Motor sweepers • Road rollers • Hydraulic cranes

2. Company does not operate sewer services, but does bill for them.
3. Bills are prepared on Burrough's Sensimatic automatic billing equipment.
4. Water rates were last revised December 31, 1953 at which time they were increased $1,200 to $1,400 per single family and units were added. The rate adjustment affected water use.

THEODORE L. CATE
Superintendent
Laconia Water Works

NORTH ANDOVER, MASS.

Rates Per Quarter

Cubic Feet	*Per 100 Cubic Feet*
First 2,000	$ .24
Next 10,000	.18
Excess	.13

Minimum Quarterly Charges

Meter Size (in inches)	*Charges*
1/2	$2.00
3/4	3.00
1	5.00
1½	10.00
2	13.00
3	25.00
4	50.00
6	100.00

Typical Quarterly Costs

Gallons	*Cubic Feet*	*Charges (5/8-inch meter)*
9,000	1,200	$2.88
15,000	2,000	4.80
30,000	4,000	8.40

General Data

Population served	10,000
Miles of mains	67
Services (100% metered)	2,604
Supply—water comes from a lake	
Treatment—lime and chlorine	
Plant capacity	6 mgd
Average demand	1.1 mgd

Remarks

1. The Public Works Department provides service line to full length at property owner's expense. It does not provide any of the cost of new mains.
2. The department also operates sewer services, but there is no charge for this service.
3. In rendering its bills the department uses an Addressograph and a Remington Special.
4. Water rates were last revised in April 1957, at which time rates were increased by 33⅓%. The rate adjustment did not affect water use, and no further adjustment is needed at this time.

WILLIAM B. DUFFY
Superintendent of Public Works
Public Works Department

Who Hid the Hydrants?

A SEARCH of every tenderly planted privet and bayberry in whole blocks of Great Neck, N. Y. has strained a "button, button, who's got the button?" air—as well as the patience—of town fire commissioners.

The objects of the hunt? Many of the bright red fire hydrants that have been carefully camouflaged by prideful homeowners.

The Alert Engine, Hook-and-Ladder Hose Company, which serves the town and its environs, has discovered 21 hydrants that were overgrown to a point where location was difficult. In three instances, townspeople had built fences around them.

The North Hempstead Town Board, jurisdictional body for Great Neck, has sent letters to property owners and the local water company ordering immediate removal of embellishing vegetation and any other obstruction to quick access to fire hydrants.

Giant V-plow on A-W grader knifes through crusted snow to clear 9-ft. 2-in. swath. Snow wing moves deeply piled snow farther to side or can be used for extra-wide blade path.

Win winter snow removal battles with V-plow and wing-equipped Austin-Western

No truck or grader can match the snow-fighting ability of an Austin-Western equipped with giant V-plow and wing. The secret lies in Austin-Western's exclusive all-wheel drive and steering. Front end driving power provides vital pull-push action for deep plowing . . . rear steering lets you resist powerful sidethrust when winging or widening.

Walks out of drifts, ditches

Rear steer also lets you work short radius curves like street corners, without backing, steer closer around obstructions like hydrants and poles. From users everywhere you hear things like this: "It's almost impossible to get an A-W stuck. You just steer the rear end and walk both ends diagonally out of drifts or ditches. Our A-W graders often rescue 4-wheel drive truck plows and other graders."

The operator never has to leave his warm, weathertight cab. Entire snow fighting operation can be hydraulically controlled from cab in bitterest cold.

Keep streets open

A-W graders are quality built for high performance under the most rugged conditions. They can be depended upon to stay on the job, without big down-time or maintenance problems, even during punishing month-long, round-the-clock "blitz" type snow removal operations. A-W graders will keep your streets and highways open!

This year win the battle against traffic-paralyzing snow. Learn all about the A-W grader with giant V-plow and wing. See your local Austin-Western distributor now or write to us.

Rear steer counteracts side draft and adds the manuverability so essential where the "going is toughest."

Austin 100th YEAR Western
CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.
BALDWIN · LIMA · HAMILTON
Power graders • Motor sweepers • Road rollers • Hydraulic cranes

NEW ...from Kerrigan

CLASSIC Streamlined Standard

to complement our new streets and highways

Already receiving praise for its modern, functional styling from municipal and utility officials in several cities, we believe our new standard "The CLASSIC" will become a "hit" throughout the nation. Its attractive, modern design is in keeping with the trend to functional, streamlined styling. The usual banjo work has been eliminated, making installation and maintenance much simpler.

Tested for hurricane winds and available in either steel or aluminum, the traffic signal standard can be rotated to any point within a 360-degree circle.

The Classic
Pat. Pending

Address Dept. A-1

For further information on the brand new "CLASSIC", write, wire or phone CHapel 2-4262.

Weldforged LIGHTING STANDARD DIVISION

KERRIGAN IRON WORKS, INC.

Nashville, Tennessee

City Purchasing

Carefully drawn specifications to encourage fair competition will win confidence of suppliers and bring reasonable bids

By JOSEPH L. ROSE
Director of Public Works
Evanston, Ill.

THE entire process of public purchasing should be carried on in a manner calculated to make every move crystal-clear. The process of governmental purchasing is outlined in detail in law. Usually municipalities must appropriate funds for the purchase of equipment. Appropriations are, in most cases, required to be specific as to the nature of the appropriation. For example, the ordinance may state that a certain number of dollars are appropriated for the purchase of a motor grader.

The whole process of buying starts with a requisition from the using department. Inasmuch as it is made up of people who make use of the equipment, it is important that they fully understand their own needs and what is available to them. The average city does not buy large numbers of pieces of equipment at one time; hence, its specifications must be written around standardized products.

Perhaps some of the larger cities are able to write specifications which would enable them to purchase without considerable premium special features that they may have a particular need for in their work. The writing of the proper specifications is essential in public buying. They must not be restrictive. The writer of specifications must bear in mind that competition must be encouraged.

Maurice G. Postley, a past president of the National Institute of Governmental Purchasing states that:

> **Competitive bidding in public purchasing is as old as public scrutiny of the expenditure of the taxpayer's dollar. That anyone should presume to discuss its real meaning may, therefore, seem unnecessary as discussing the real meaning of a dollar. Yet if you pause for a moment and think of what has happened to the purchasing power of a little old dollar, you may see nuances in the possible meanings of competitive bidding.**
>
> **The chief criticism of competitive bidding comes from those who argue that the lowest or the "cheapest" bidder wins the business. Such a bidder is pictured as a peddler of shoddy goods. Actually there is very little "lowest numerical bidder" buying these days. However, it is in the best interests of both buyers and sellers that the competitive bidding system be strengthened, not weakened. So we come to a definition of a sort; competitive bidding assumes an equal opportunity for all qualified vendors.**
>
> **Competitive bidding should enable producers of goods or services to offer their wares on a basis related to what the purchaser seeks, at the same time taking into consideration what it is that the seller is offering.**
>
> **The true meaning of public competitive buying cannot be repeated too frequently or supported too strongly by American business enterprise. That meaning is simple: it is the gradual and continuing improvement of the relationship of buyer and seller by an increasing understanding of what it is that the buyer wants and what it is that the seller offers. It leaves the purchasing decision to the buyer.**

Joseph L. Rose

The purchasing of equipment as we have stated begins with the using department. Determination of needs and requisitions start here. In smaller cities equipment usually serves more than one purpose. The problems of exploring the various uses which a piece of equipment may be put to in its own or other departments deserves careful study. A good example of the use of a piece of equipment by more than one division is shown in the case of a brush chipper, or a front-end loader. Both of these machines could be used, for example, by the park department or the refuse department. In the case of the brush chipper, it could be used by the park department in tree trimming work and in the refuse department it could be used to reduce the volume of brush included in household rubbish. This is an example of a single-purpose piece of equipment that may be used by several departments or divisions.

In the case of a conveyor-type snow loader, it can load snow and at other seasons wet leaves or materials. This is an example where equipment may be used for multiple purposes by a single department. Both categories are of prime importance to smaller municipalities. Large cities generally are not as concerned with the multiple use.

Demonstrations Useful

It is essential the using department personnel examine *all* available equipment for performance, preferably by on-the-job demonstrations, to determine detailed minimum requirements and to see that such requirements will allow competition. Visits and contacts with other cities can be productive. Then the question should be asked of the using department, "Will it recommend acceptance of any bid which meets all of the specification details?"

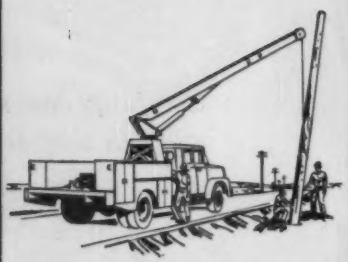
It is advisable to keep an open mind on new and different equipment to determine if it can do the job better than equipment of conventional type. I have in mind an incident which occurred recently in connection with a stump remover. The Illinois cities are now plagued with Dutch Elm disease and stump removal is an important factor in the elimination of dead or diseased trees. Until the fall of 1957 the only motorized equipment available for

watch one work—

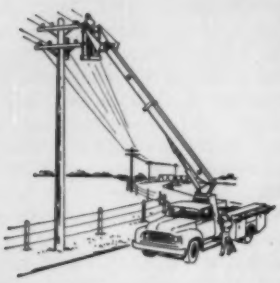
that's all we ask!

New Model 50
PITMAN HYDRA-LIFT

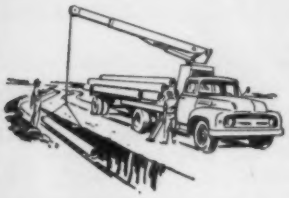
Words are words, but actual performance is the only thing that really counts. In setting a pole, hanging a transformer, putting a man aloft, laying pipe . . . on these or other similar lifting jobs, how much time **can** a new Model 50 Hydra-Lift save? We've put Model 50 to work on jobs like these and now we'd like to prove to you what we found out. Why not write today. Let us send you literature, then arrange for a demonstration. No obligation on your part, and the savings could be tremendous.



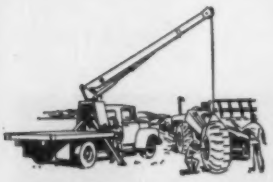
COMPLETELY HYDRAULIC operation, including all boom action and placement of outriggers. With Model 50's swinging boom, you can work over the side of the truck—thus you do not block traffic on the road.



HYDRAULIC TELESCOPING BOOM* and optional personnel platform make Model 50 ideal for overhead work. Controls on each side of truck assure operator excellent visibility. Model 50 has 360° boom rotation—boom can be carried over the cab or over the bed. *Also available with fixed boom (12′) or manually telescoping boom (12′ to 20′).



LIFTS UP TO 5000 LBS., yet requires only 25" behind truck cab. On a tractor-trailer, Model 50 loads the trailer, moves with the load to the job and is ready to lay pipe or set poles.



NEVER IDLE—Once you own a Model 50 you'll find it's never idle, and every minute it's working it's saving you money. Model 50 can be installed on any make truck, 1½ tons or larger, new or used, also can be used with conventional line bodies.

PITMAN Manufacturing Co. Grandview, Missouri

Please send me literature ☐
I am also interested in a demonstration ☐

Name _____

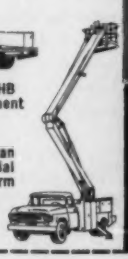
Company _____

Street _____

City _____ State _____

Pitman also manufactures

Hydra-Lift, Model 60HB with digger attachment



Pitman Aerial Platform

Pitman
MANUFACTURING CO.
Grandview, Missouri

stump removal was a tractor-mounted rotary auger or cutter. In the winter of 1957-58 it was decided, after demonstrations, to purchase a recently introduced piece of equipment* which consists essentially of a motor-driven circular saw mounted on a two-wheel trailer, which can be pulled by a small truck or a Jeep. This item appears to be producing highly satisfactory results at very low unit costs. This is, I believe, a good example of how open-mindedness paid off.

Manufacturers must be consulted and permitted to consider tentative specifications to determine whether they can meet the conditions outlined. The charge is often heard that the specifications are too restrictive—are written for one manufacturer, etc. The writer of specifications must consider these claims in order to stimulate competition, while at the same time he must make sure he is meeting the needs of the using department. The basic specification should be drawn in such a manner as to exclude unsuitable and unsatisfactorily manufactured vehicles or equipment. It is important that we maintain close contact with the using department in the purchase of equipment. Superintendents and equipment operators often become partial to certain equipment and, perhaps, with justification.

Procedure

The completed specification forms the basis for the invitation to bidders. In this step the purchasing department advertises and solicits known vendors. This stage of purchasing should be carried on in a "goldfish bowl." The opening and tabulation of bids should be carried out in presence of the vendors when possible. The latter should be encouraged to attend openings and encouraged to comment on the procedures and specifications.

The procedure which concerns itself with the "award to the lowest responsible bidder" is probably the most controversial of all the steps in the buying process. How does one determine who is the lowest responsible bidder? If a perfect specification could be written and competitors could meet all the requirements the answer might simply be in the price alone.

The National Institute of Municipal Law Officers lists the following considerations, which the purchasing agent should consider in determining the lowest responsible bidder:

> **The ability, capacity and skill of the bidder.**
>
> **Whether the bidder can perform the contract or provide the service within the time specified.**
>
> **The sufficiency of the financial resources of the bidder.**
>
> **The quality, availability and adaptability of the suppliers, or of the contractual services, to the particular use required.**
>
> **The ability of the bidder to provide future maintenance and service.**
>
> **The number and scope of conditions attached to the bid.**

In most large cities the actual award is made by the city council following a recommendation of the purchasing agent. In preparing a recommendation the purchasing agent will consult with the officials in the using department. I believe it is important that agreement be reached, if possible, among the engineers, the public works office and the purchasing agent on such recommendations.

* Pow-R-Stump Cutter made by Vermeer Mfg. Co., Pella, Iowa.

Insure against flies and mosquitoes next summer by including Buffalo Turbine Sprayers in your budget NOW

- Enjoy longer lasting, more efficient, wide-area insect control for as little as 15 cents per acre.
- Penetrates a city block from vehicle on the street.
- Does not spot cars, homes or windows.
- Covers 50 acres per hour.
- Kills more flies and mosquitoes at lower cost than any other method.

Yes, now is the time to include the necessary funds in the budget to rid your community of disease carrying flies and mosquitoes. And the most efficient, most economical equipment you can buy is the Buffalo Turbine Sprayer-Duster that permits TURBO-SPRAYING of liquids for larviciding or TURBO-DUSTING for adult insect control. These methods can be carried out separately or simultaneously as desired.

A powerful "Turbulent Air" blast atomizes and blows spray or dust (velocity up to 180 M.P.H., volume 14,000 cu. ft. of air per minute) in a controlled pattern.

Low initial and maintenance costs make this the most economical control equipment available today!

Buffalo Turbine Sprayer-Duster operated from pickup truck in action at Lawton, Oklahoma.

Write for literature and prices.

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BUFFALO TURBINE AGRICULTURAL EQUIPMENT CO., INC.

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SIMPLIFIES PLANNING, INSTALLATION, AND MAINTENANCE

You have a crushing strength to match every laying condition . . . because there are 5 new engineering classifications of K&M Asbestos-Cement Sewer Pipe. A Manning Factor of n = 0.010 permits fewer lift stations, flatter grades, higher-level filtration plants, and smaller pipe diameters. Tight joints eliminate infiltration.

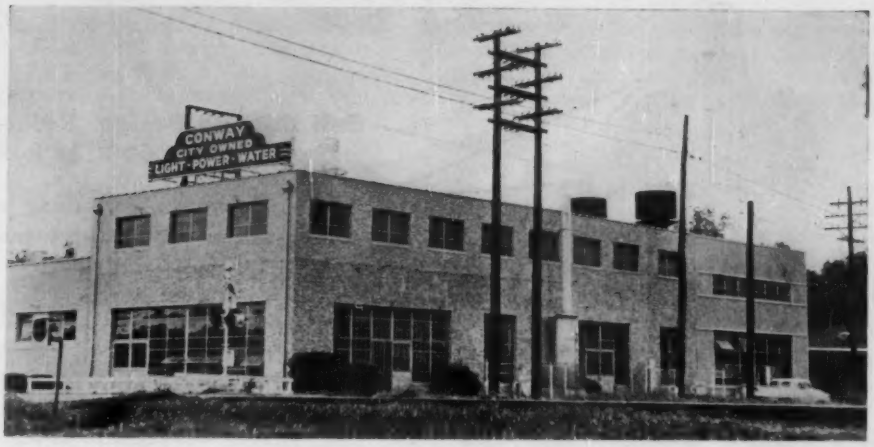
Unskilled labor can install lightweight K&M Asbestos-Cement Sewer Pipe in any weather . . . without heavy machinery. Joints are permanent and water-tight. You can make connections in two easy steps . . . quickly make branch connections. Lubricate rubber rings . . . slide pipe into coupling. Joint allows a 5° deflection and absorbs vibration.

Practically indestructible, K&M Asbestos-Cement Sewer Pipe requires fewer inspections and fewer periodic cleanings. Water can't seep out . . . roots can't penetrate. K&M Sewer Pipe is non-electrolytic and non-corroding . . . because it's made of asbestos and portland cement.

Write to us today for more specific information and for our new booklet on engineering classifications...which contains a handy crushing table based on the Marston formula.

K·M
BEST IN ASBESTOS

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

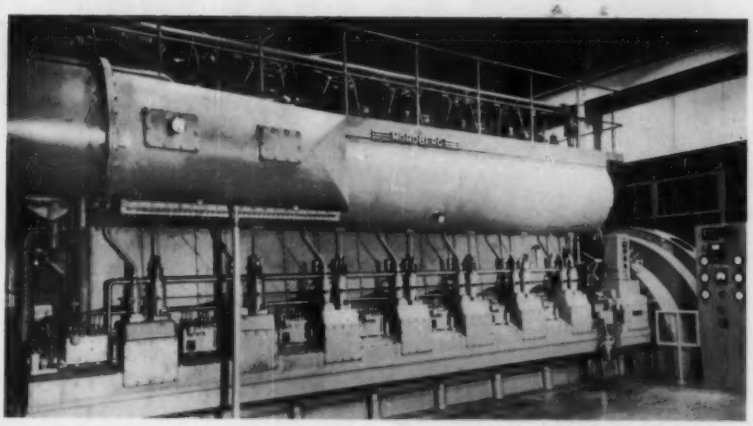


Conway's neat, unobtrusive plant has played a major civic role in the community's history.

More Than an "Electric Plant"

Conway's municipal power plant shows extra characteristics in promoting the growth and stability of its city

By WALTER SCALES
Manager
The Conway Corporation
Conway, Ark.



This is the most recent of the engines installed in the plant. Because of its fuel economy it operates almost continuously.

BY LEASING its municipal power plant to a local, nonprofit corporation, Conway kept Hendrix College from moving out of town. This was 28 years ago; today, this same plant, which is paced by two big Nordberg Duafuel engines, is still a prosperous "rich uncle" to the growing community.

Conway, located about 35 miles north of Little Rock, is a quiet town of 10,000 population. The Conway Corporation operates the electric system under a lease-and-franchise agreement that will be explained in detail. The town has grown progressively without ever having experienced a spectacular expansion of industry or home building. The power demands have increased chiefly as the result of greater per capita use of electricity in homes and businesses for operation of new appliances. Air conditioning has proved to be one of the biggest factors contributing to the need for increased generating capacity.

New Generating Units

To meet the progressively increasing load on the power plant, two Nordberg Duafuel engines have been installed during the past six years. They are both seven cylinder, two-cycle units whose combined output to the power line is 4,720-kw, or 57% of the plant's 8,020-kw capacity.

The first Nordberg was installed in the closing weeks of 1951 and went into full operation the following year. This unit operates at 225 rpm, is rated at 2,750 bhp and drives a Westinghouse 1940 net kw generator. It has a Roots Connersville positive displacement scavenging air blower. The second Nordberg, installed in 1956, is also a 7-cylinder unit but it operates at 240 rpm and is rated 3,475 bhp with scavenging air supplied by an American Blower Corporation motor-driven centrifugal blower. It drives a General Electric generator with a net rating of 2,740-kw after supplying electric power to operate the scavenging air blower.

(Continued on page 143)

Ball Bearing Design. Reduces operating torque more than 50%! Less maintenance!

"O" Ring Seals. No stuffing box! Packless, dry-top design! Eliminates customary maintenance of packing. Greatly reduces friction while assuring complete, *permanent* lubrication of operating mechanism.

Direct-Acting Rod. Operates main valve without auxiliary connections. Made of special steel, sleeved with bronze at the "O" ring.

FEATURES OF ASSURANCE

with Darling B-50-B Hydrants

Extra Large Barrel. Delivers water at the nozzles with no appreciable pressure loss!

Integrated Main Valve Assembly. Designed for easy, complete removal of all working parts on the hydrant rod!

Positive Multi-Port Drainage. Unique design with automatic line-pressure flushing at every opening and closing makes stoppage or freeze-ups virtually impossible.

For complete details on the outstanding B-50-B hydrants, other major features, types, sizes, ask for Bulletin 5710.

TRADE DARLING MARK

DARLING VALVE & MANUFACTURING COMPANY

Williamsport 10, Pa.

Manufactured in Canada by The Canada Valve & Hydrant Co., Ltd., Brantford 7, Ont.

From the moment the first Nordberg went on the line, it carried the lion's share of the load. For a period of 43 months, the Nordberg was on the line 28,379 hours out of a possible 31,419 or more than 90% of the time. Producing 75% of the entire plant out-put, the engine generated 36,071,600 kwhrs.

The newer engine entered service April 1, 1956. By the end of 1957, it had operated 14,309 hours or approximately 85% of the time during this 21-month period. It is operating at even greater efficiency and economy than had been achieved with the previous unit and has already generated 22,530,000 kwhrs.

Plant History

Back of the development of the power plant there is one of the most unusual systems of municipal operation ever devised and probably the only one of its kind in the country.

Around 1895, the Conway Electric and Manufacturing Company started the plant and in 1901 sold it to the town for $8,500 which was paid for by levying a 5 mill tax on real estate. It was first operated by a Board of Improvement until paid out and then by the City Administration until 1929. At that time the Methodist Church found it necessary to make some changes in its educational setup and proposed to consolidate Hendrix College at Conway with Henderson-Brown at Arkadelphia. Little Rock wanted the combined institution and the little town of Conway wanted it to remain there as Hendrix College. To keep the college, the town had to contribute $150,000 to the college for buildings, etc. It was an impossible amount to raise by public subscription. Conway had no such amount available and in any event it is unlawful to assess taxes to raise money for a private institution.

Confronted with this dilemma, the town fathers decided to organize a nonshare, nonprofit corporation and give it a lease on the generating plant and franchise for operation of the electrical system. The plant was executed and bonds were issued by the Conway Corporation to help raise the money to retain the college.

The Conway Corporation has a Board of Directors serving staggered terms and each time a term expires a succeeding member is chosen by the remaining members from among prominent businessmen of the town. Approval of the new member by the City Council is mandatory. No member may succeed himself except the Chairman of the Board. This is deemed advisable in order to have one member in close touch with operation over a long period of time. By informal agreement, the Conway Corporation also operates the water works as a measure of economy although the water system is under direct control of the city administration. The Conway Corporation is required to maintain the street lighting system and expand it as needed without cost to the city. Incidentally, the electric rates in Conway have remained consistently lower than in other towns in the region.

When the plant was taken over in 1929, it had a book value of $217,000. The current value is $1,660,000. The Conway Corporation has made contributions to colleges and schools and erected buildings to attract and preserve factories and businesses. It has made franchise payments and given free services to the town totaling over $1,250,000. It has a high credit rating with banks in Little Rock and does all of its own financing of the plant expansion and improvement so that the town has no bonded indebtedness in connection

VERSATILE

... for fly and mosquito control

LOW COST PROTECTION

... to keep trees healthy and free of insects and disease

NEW John BEAN® MODEL 50 ROTOMIST®

Here's a new dimension in sprayer design. For all-around community protection at modest initial cost, the new Model 50 Rotomist offers unmatched performance and economical operation for every spraying job. Exclusive, straight-through air delivery provides the drive and volume needed for thorough coverage and faster rate-of-work, even under light wind conditions. Rugged, built-to-take-it construction assures years of service with minimum maintenance. For complete details, see your John Bean dealer.

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WITH ALL THESE EXCLUSIVE FEATURES:

* Delivers 12,000 cubic feet of air per minute at 100 mph
* Counter-balanced fan assembly and handy controls for easy operation
* Complete spray control—unit rotates 360° laterally, 50° vertically — optional angle head for tree spraying
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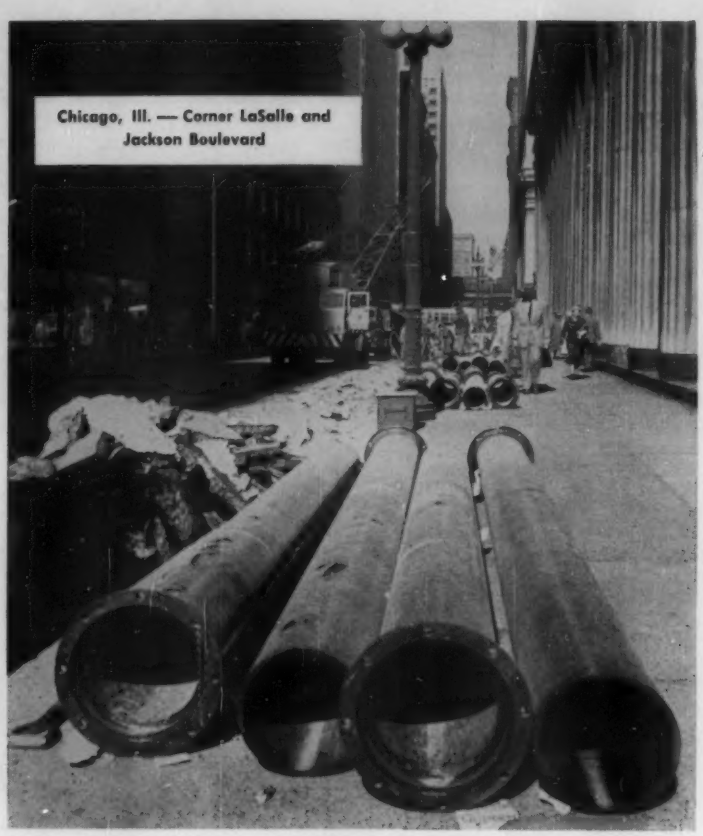
Division of Food Machinery and Chemical Corporation

Ask for details on 60 GPM Hydraulic Sprayer

Send me: ☐ New Rotomist Sprayer Catalog ☐ New Royal and Royalette Sprayer Catalogs ☐ Facts on Mosquito Control ☐ Facts on Dutch Elm Disease Control

ATTACH COUPON TO CARD OR LETTERHEAD — GIVE NAME AND ADDRESS

Water Utilities in Many Cities "DO IT NOW!"



The timely "Do It Now!" program, launched last April by the AWWA to encourage communities to correct basic deficiencies in their water systems and provide for vastly increased future water demands, is making headway fast.

Results of an AWWA survey show that many cities are now speeding up scheduled water works improvements projects, while others are blue-printing deferred plans. They are "doing it now" because they recognize that failure to provide an adequate water system can endanger public health and halt community progress.

When you "Do It Now" in your community, make sure that you don't have to dig up your water mains and "Do It Again" 10, 15 or 25 years from now.

Be sure to specify permanent

CAST IRON PIPE

The *proved* useful life of Cast Iron Pipe is at least double the estimated life of other pipe materials used for underground mains. Its maintenance cost is far below that of any other pipe material which has been in use long enough for the recording of conclusive data. That is why Cast Iron Pipe is rightly known as "America's No. 1 Tax Saver."

Our Company does not manufacture pipe but has long supplied the nation's leading Cast Iron Pipe manufacturers with quality iron from which quality pipe is made.

WOODWARD IRON COMPANY
Since 1882
WOODWARD, ALABAMA

with the power and lighting facilities.

Performance of the new Nordberg Duafuel engines reveals excellent economy in operation. During 1956, the engines produced a kilowatt-hour at a fuel cost of just 3.8 mills. During the same period the overall plant operation, excluding interest and depreciation, was only 7.1 mills per kwhr. This included all operating costs such as labor, supervision, fuel, lube, supplies and maintenance of plant and structure as well as engines and generators.

When the second Nordberg was installed, it was necessary to add to the building, thus also providing space for additional power in the future. A pump pit was provided at the front end of the engine, and since the new unit is scavenged by a motor-driven centrifugal blower, a special extension was built to house the blower and motor.

Features

Each of the Nordberg engines has a closed cooling system. Prichard towers cool the raw water supply for circulation through the jacket water and lube oil heat exchangers and also for scavenging air intercoolers served by separate motor-driven centrifugal pumps. All of the water pumps are of motor-driven centrifugal type. Outside of the plant there is an "aqua-tower" for each engine to cool the air before it passes through the American air filters. This is to correct an adverse atmospheric condition of heat and humidity that exists during a part of the year in the area of the plant.

The Maxim exhaust silencers back of the power house, are very effective making the plant, which is in the middle of town, an unobtrusive neighbor. Gas fuel is separately metered for each Nordberg whereas for the older engines the gas was collectively metered. The new arrangement permits accurate checking of the gas consumed by each Nordberg. There was no practical way to maintain a separate check on consumption of the older engines because there were always two or more on the line.

It is anticipated that further generating capacity will be needed and to that end space has been provided in the new section of the building for another unit. Looking further into the future, a system of construction has been employed which lends itself to enlargement with little difficulty and at reasonable cost.

780
TRUCKSTER®

Already proved by thousands of industrial, commercial and governmental users to be America's greatest light hauling value, the 780 Truckster for 1959 offers no less than a dozen new advances for still greater performance, safety and ease of operation.

Hauling up to an 800 pound payload at amazingly low cost, the 780 Truckster can effect substantial savings for you.

Advances for 1959 include:

- Constant mesh transmission and improved clutch
- Hydraulic, internal expanding brakes on all wheels
- Independently operated parking brake
- Tapered roller bearings on all wheels
- Heavy-duty automotive-type wheel rims
- 12-volt lighting system with sealed beam headlight

All-fiber glass cab with side curtains available as optional equipment. Wide variety of body styles offered to fit your specific needs. Electric starter also available.

See your dealer for
FREE DEMONSTRATION
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Sold and serviced nationally . . .
Replacement parts immediately available
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NEW International® Drott with Four-In-One

CAPACITY...to outload 100 hp "single-action" rigs

PLUS VERSATILITY UNLIMITED... of exclusive clam-action

Sized, powered, geared, and controlled to decisively outproduce any "single-action" loader in the 100-hp field—the new 2¼ cu yd TD-15 4-In-1 gives you exclusive International Drott clamshell action!

Here's new big-job-sized versatility unlimited! Simply move the selector lever from the tractor seat with fingertip ease—to get any one of four big-capacity machine actions needed. On big job after big job, the TD-15 4-In-1 can replace costly limited-action machines one after another!

And whether this 4-In-1 replaces four or forty machine actions for you, you get it for one moderate price!

Smooth, years-proved, 115 hp 6-cylinder International diesel engine in the new TD-15 4-In-1 gives you full advantage of increased hydraulic system capacity—of new 6-speed, full-reverse transmission mobility—of new cycle-speeding forward-reverse Shuttle-Bar control!

Correct balance and long-track stability eliminate the need for counter-weighting the TD-15 4-In-1. Track length on the ground is a full 98⅜ inches!

Compare capacity and versatility on your own roads, streets and public works jobs!

There's only one way to size-up new TD-15 performance—to measure its job range and capacity—to compare its cost-cutting capabilities to a yard-full of special-purpose rigs. That's to get on the deep-cushioned seat and prove to yourself what it can do. See your International Drott Distributor for a demonstration!

"Concrete-bucking" pry-action break-out breaks up, digs up, and loads out old pavement — gives a big economy advantage to municipalities, over single-action rigs that lack 4-In-1 *pry-over-shoe* power! The new TD-15 4-In-1 exerts the tremendous break-out force of 42,650 lbs.

As a "carry-type scraper" with cutting edge grading-off an even layer, and "boiling" the bucket full, the new TD-15 4-In-1 gives you a multitude of profitable uses. It can grade, strip, spread, or load-in-place a wide variety of materials with amazing accuracy!

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT®

TD-15

You'd need a heavy-duty blade outfit to match the earth-rolling material-digging performance of the new TD-15 4-In-1! You regulate dozing depth accurately with "radius control," hydraulically, from the tractor seat.

"Back-dragging" with exclusive clamshell action—new TD-15 4-In-1 reduces time and cost of "dressing" a bank—or pulling down material by the truckload! Shuttle-Bar control speeds up back-and-forth cycles on jobs like this!

M unicipal
P ublic
R elations

The City Tells Its Story

Edited by PAN DODD EIMON

Executive Director, Government Public Relations Association

Practical Municipal Public Relations Tips for 1959

EVERYBODY agrees that 1959 is going to be "bigger and better for our city than any year in its history." Bolstering this first-of-the-year optimism, members of the Government Public Relations Association have some ideas on how to make it so.

These projects or procedures, all of them "tested for practicality," were reported at the GPRA convention in Boston, Mass. last month. Some are for only the large cities. Some are suitable for the smaller city or village. Several are adaptable for your city.

Citizen committees aren't a *new* idea, but evidence mounts as to their

effectiveness in a bond issue campaign. The Citizens Committee for Future Tacoma Development was made up of 250 members appointed by the city. The committee planned and ran an all-media publicity campaign for a bond issue. Because the committee represented all segments of community life, it got ready cooperation from practically everybody, including commercial newspapers and the broadcast media. Results: largest voter turnout ever recorded in a city election; 70%-75% approval for $8,000,000 worth of improvement projects. Says city manager David Rowlands, "A citizen committee is still the best way to sell a good improvement program to other citizens." *Idea from: Tacoma, Wash.*

A city fair, set up in colorful tents at a centrally located park, plaza, or town square interest people who may not be reached by other media. Displays include: city equipment, city plans, working models of contemplated construction. There are demonstrations of the work of the fire and police department, films and film strips, health department innoculations. Commercial equipment representatives can help set up a model kitchen in which city services (lights, water, sewage, garbage collection) are enumerated. Building code and housing regulations may be graphically displayed in a similar manner. Do schedule a band concert or two and, possibly, a short historical sketch of the city with local theater groups or students taking part in the program. *Idea from: Philadelphia, Pa.*

Student delivery of information can work wonders. The students do more than just take the item home. They talk about what it is, urge their parents to read it and to act. This is what happened in a California city which printed a brochure on city recreation programs. The brochure was bundled into classroom-size packages, delivered to teachers who distributed it to pupils to take home. The results were so effective (1,680 of a total 1,870 households were reached) that the city planned to distribute its annual report in the same manner. *Idea from: Newark, Calif.*

Opinion polling doesn't have to be fancy. There are many matters on which city officials must know citizen opinion before acting. The usual way is by public referendum. Officials of a New York community wanted to know what taxpayers thought about annexing an adjoining suburb but a referendum would have cost $3,000-$5,000. Instead, the board had its public relations consulting firm publish a brochure, detailing the pros and cons of annexation and including a return postcard for an informal vote. Cost, $1,000. *Idea from: Rockville Centre, N. Y.*

PR offices take care of such matters as the city's annual report, citizen newsletters, press relations, films, speeches, tours of city facilities, and employee information. Five California cities report that their public relations programs cost from $4,800 to $20,000 annually, that the "time and money spent on PR is well spent," and that the programs "stimulate more interest in city government." *Survey by: Santa Monica, Calif. Cities with the public relations programs: Anaheim, Beverly Hills, Burbank, Long Beach,* and *Richmond.*

Campaign Booklet Sells Multimillion-Dollar Bond Issue

WHEN Jackson, Miss. voters went to the polls to decide the fate of an $8,000,000 improvement program, they went knowing what the referendum was all about. Thanks to a pre-election information campaign by the city, the voters approved all eight projects and the bond issue to finance them.

The improvement program had two strikes against it at the beginning. By nature, voters are conservative when it comes to spending money, especially when they feel "things are going along all right the way they are." Secondly, the referendum date was just 60 days after City Council had raised taxes. Jackson's public relations officer and other officials realized that, if people were not sold on the merits of the

THE LARK BY STUDEBAKER LOWERS MUNICIPAL TRANSPORTATION COSTS FOUR WAYS

Here's why The Lark is already being hailed as the most practical dimension in motoring and how it can provide multiple savings for budget minded town and city governments. ➤ LOWER INITIAL COST. A fleet of smartly styled Larks saves money right from the start. They offer all the features of a conventionally sized car, full seating for six adults, yet Lark prices are lower! ➤ LOWER OPERATING COSTS. The Lark is designed for economy plus performance. With newly designed induction system and carburation on the L-Head "six," The Lark goes a *very long* distance between fuel stops. For higher performance, choose the V-8 engine. It, too, is extremely economical and, like the "six," turns in peak performance on low-cost, regular gas. ➤ LOWER MAINTENANCE COSTS. Lark design minimizes downtime and cuts maintenance costs. Engine parts, such as 4 massive main bearings and a new, stiffer crankshaft, are soundly engineered for longer wear. All components in the engine are simplified and easily accessible, making repairs faster—and cheaper. Bolt-on grille assembly and fenders reduce the cost of repairs to sheet metal in case of accident. ➤ TAKES UP LESS ROOM. The Lark is only 14½ feet long. Useless overhang has been eliminated so that every Lark saves almost 18 square feet of valuable garage and parking space.

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THE LARK 2- AND 4-DOOR SEDANS. Excellent departmental cars. Reflect good taste and handle with effortless ease. The Utility Sedan features spacious flat area behind driver's seat for bulky merchandise or other material.

These other Larks will meet specific requirements.

THE LARK STATION WAGON—smart and practical. Converts to Panel Wagon with easily installed side panels.

THE LARK HARDTOP—Ideal executive and supervisor's car.

THE ECON-O-MILER—A 113-in. wheelbase car that is ideal for severe-service conditions.

Without obligating myself, I would like to know more about the new dimension in fleet transportation.

MR. A. E. FITZPATRICK, Manager—Fleet Sales
STUDEBAKER-PACKARD CORP./South Bend 27, Indiana

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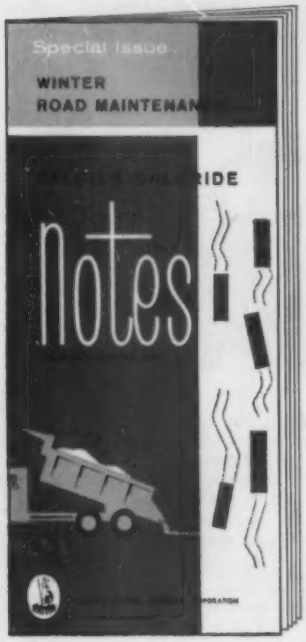
The advantages are outstanding . . .

Effective—at *all* temperatures • **Faster Melting**—calcium chloride triggers action of the rock salt • **Easily Stored**—in the open under tarpaulin or sheds • **Economical**—greatly increased effectiveness with little increase in cost • **Adaptable**—to bulk shipments of both calcium chloride and rock salt • **Best Way**—to maintain bare pavements



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☐ Please send me free booklet
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improvements, the bond issue didn't have a chance.

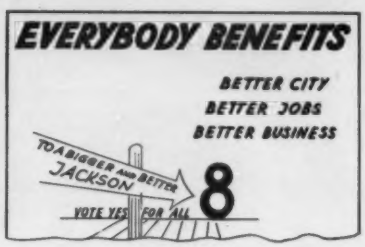
The information effort was neither elaborate or costly. It consisted of developing facts about each of the eight projects, translating these into meaningful language for citizens, and getting the facts before as many individuals, groups, and business organizations as possible. The city used television—two half-hour programs and spot announcements—a speakers' bureau, billboards, and some newspaper advertising. It had the support of three local papers.

Jackson issued only one publication—a simple, 24-page folder, multilithed from regular typewriter type. It states the case of each project and answers the question "why is this needed?" The folder was widely distributed to households, business places, schools and service clubs. It was the fact sheet from which program directors and news reporters developed stories for Jackson radio stations and newspapers. It was the basic information used by officials in making talks. It was the guidebook for service clubs studying Jackson needs.

Why the folder was effective involves principles of municipal selling which any city may copy.

1. ***It stresses benefits for everybody.*** The overall improvement program, and each of the eight projects (airport, fire department, libraries, parks and recreation, municipal court building, sewers, streets, water department) were interpreted in terms of what these would mean to the individual Jackson resident. The booklet's theme, "your future is better in a growing city" promises "better jobs" and "better business."

2. ***It's laced with facts.*** Although the information has an emotional appeal (i.e., for a better city and a better future), the projects are detailed on the solid foundation of facts. For example, the most costly single project is the construction of a new airport to replace the existing one. Why a new airport? Jackson tells its people plainly, "Hawkins Field runways are neither long enough nor strong enough to accommodate modern four-engined aircraft being operated regularly by the major airlines today. Delta Airlines has requested improved facilities which will permit their DC-7's to operate into Jackson now. These runways will be totally inadequate for the new commercial airlines that will be in regular operation by 1961. A minimum of three years is required to construct these needed facilities." That's just part of the answer, but it is an example of how clearly and definitely facts are stated in support of each project.



Campaign Booklet, Jackson, Miss.

3. ***The folder tells a whole story.*** A selling campaign of any kind stresses the positive and desirable side of a product or project. But, in a democratic local government, not only the positive side must be told. The disadvantages and costs can't be avoided. People must know these to make suitable judgment. Jackson tells people not only what the projects will cost, but details how the bonds will be paid. This in turn is translated into the tax millage.

4. ***Finally, citizens are told what to do about it.*** It is a rule of advertising that, if action is desired, the reader must be directed to take it. He must buy a product, send in a card, walk to the nearest store, hurry to the sale. When it comes to municipal information, citizens are often sold on an idea but are not told what to do about it. Jackson's information booklet is forthright: "Vote yes for all eight programs in the city bond election."

The Jackson folder isn't a thing of beauty. But it is loaded with hard-sell information and the results of the election indicate how sound it was!

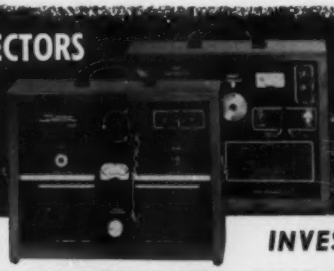
Of public relations interest, also, in connection with the Jackson bond issue is the advance information sent to potential bond buyers immediately after the referendum. Clerk Mrs. J. R. Skinner wrote the bond buyers that they'd be notified of the bond sale but, "meantime, you may be interested in the attached information about Jackson's economy and growth."

One of the three multilithed sheets lists the eight projects, the amount of bonds to be sold for each, and the percentage by which Jackson citizens approved the project.

A second sheet states that "business is good in Jackson" and proceeds to prove it with quotations from *U. S. News and World Report, Rand-MacNally Business Trend Report, Forbes Magazine,* and the *Mississippi Business Review and Sales Management Magazine.*

The third sheet lists construction under way of projects scheduled in Jackson for the next two years. (Limited number of samples of the voter folder and the bond-buyer's pages are available from: J. Bryant Horne, Personnel and Public Relations, City Hall, Jackson, Miss.

Detectron "505" PIPE DETECTORS
Have Everything!
. . . any pipe locator will trace and locate some pipes but only Detectron's
"505" PIPE DETECTOR
has all seven distinctive features!



1 BUILT-IN BATTERY TESTER
2 QUICK-ACTION "SNAP-ON" TUBULAR HANDLE
3 ALL-METAL CASE REMOVES STATIC
4 ECONOMICAL STANDARD REPLACEABLE PARTS
5 MAXIMUM EFFICIENCY IN ALL OPERATIONS
6 LOWEST UPKEEP
7 WRITTEN "LIFE-TIME" GUARANTEE

If you did not get all these bonus features with your present pipe detector — YOU PAID TOO MUCH!

DON'T BE MISLED! INVESTIGATE — THEN BUY!

ONLY ONE PIPE DETECTOR CAN BE THE BEST—THAT ONE IS THE "505"

Detectron's "505" is guaranteed to outperform any other make irrespective of claims. Absolutely stable in all temperatures, efficient, critical and economical. A test will convince you. Write today for name of nearest dealer and free descriptive Catalog Sheet No. AC-1.

Detectron Computer-Measurements Corp., Utilities Instruments Division
5528 Vineland Ave., North Hollywood, Calif.

BEST WAY TO SAVE MONEY IN A STREET SANITATION BUDGET...

BUY MOBIL SWEEPER®

SAVE MANPOWER — Fast, efficient 4-wheel Mobil Sweeper can sweep and transport the load direct to the dump, saving a pickup crew and truck. Equally efficient on central dumping systems, too.

REDUCES DEADHEADING — Traveling at top traffic or highway speeds, dependable Mobil Sweeper gets to and from the sweeping area in ⅓ the time required by other sweepers.

MAINTENANCE COSTS ARE LOWER — Sweeper mechanism is a rugged, simplified system engineered for heavy duty — all other parts are standard truck parts, readily available anywhere. Years of operation show Mobil Sweeper lowest in maintenance costs, more dependable on the job.

OUTSTANDING SWEEPING PERFORMANCE — Mobil Sweeper, with gutter broom next to the operator and full-floating pickup broom, maneuvers easily and sweeps better. Variable speed brooms can be adjusted to proper speed for sweeping light debris or heavily caked trash at the curb line.

SAFETY OF 4-WHEEL BRAKES IMPORTANT — Sweepers carrying heavy loads on busy thoroughfares must have the safety of 4-wheel hydraulic brakes, demand this important feature.

Learn The Whole Story of Mobil Sweeper's Money-Saving Efficiency
Write for Bulletin AC-1 today. It's FREE.

CONVEYCO

MOBIL SWEEPER®

DIVISION OF THE CONVEYOR CO.
3260 E. SLAUSON AVE. • LOS ANGELES 58, CALIF.

Kansas City's new fleet of flushers line up for inspection in a downtown park area.

40% More Streets Flushed

. . . with the same number of flushers and half the manpower

By CLARENDON REA
Commissioner of Refuse Collection
Kansas City, Mo.

IN Kansas City, Mo., we have been able to obtain more mileage per load from our street flushers by trading our conventional 3-ton trucks with 1,200-gallon water tanks for seven new cab-over-engine trucks with Etnyre flushing equipment. These new units hold 2,000 gallons and have two flushing shoes under the front bumper. These are swiveled so that they can flush forward on either side. The flusher requires the service of only one man, who drives the truck and operates the flushing controls as well.

The new big trucks allow each operator to increase his flushing distance by 40% per load of water. The operators still can get as many flushing loads per day with their 2,000-gallon trucks as they did with their old-style 1,200-gallon units, so this has enabled them to increase the mileage flushed by 40% with the same number of trucks.

The new trucks are Diamond-T tilt-cab units with a gross vehicle weight of 32,000 pounds. They operate the flushing equipment at 80 psi and clean the streets far more thoroughly than did the old flushers. We have modified them to receive fire-hose attachments, so that they can supplement fire-fighting equipment when the need arises, and also haul drinking water in case of a disaster or a break in the waterline.

We clean all downtown streets daily, and other congested or heavily populated areas when needed. Most residential areas are cleaned by flushing and broom-gang cleaning once a month.

We clean the downtown area in the early morning hours when traffic is at its lightest and the streets are practically free from parked cars. Our men sweep the streets by hand and flush them to give the area a clean, fresh appearance each morning.

We clean the main arteries other than the downtown area with power sweepers and flushers, usually from 9 a.m. to 4 p.m.

Hilly Terrain Helps

In residential areas, we take advantage of our hilly terrain and flush the streets from our fire hydrants as much as possible. In other areas we will use our truck flushers. A heavy rainfall will wash street debris into

A Good Roads vacuum-type loader draws up the fall accumulation of leaves.

low spots or catch basins where clean-up crews can pick up the debris with a minimum of sweeping. Our crews can clean all the catch basins in our residential areas in three days, which is a very economical way to clean over 900 miles of paved streets. If we have a light rainfall, we will send out the flusher during the rain. Obviously, a truckload of water will go much further and do much more cleaning if the weatherman is sending down a little water to help the cleaning operation.

To help promote the use of litter baskets in the downtown area, we have developed a set of 14 slogans that are mounted on the containers. Those that appear to have the best "litter drawing power" are:

Hey-U
Here-Tis
Pleeze
Thanks
Tid-Bits
U-Use

The variations seem to have a good effect. We try to get the story to the people and feel that these signs will make them read and not just look at the baskets.

One important seasonable aspect of Kansas City's street cleanliness is leaf collection. We have many beautiful, tree-lined streets that require a great deal of attention in the fall. If the weather is dry, we pick up the leaves with a pair of vacuum leaf loaders. However, we frequently have fall rains, and when the leaves are wet we find that we can do the work much easier by plowing them into piles and loading them into our refuse trucks.

For this work, we assign the entire refuse collection fleet to supplement the leaf machines and other street cleaning equipment on three Saturdays in November. Our collection trucks average 32 cubic yards of packed leaves per day, which is a substantial amount with only two men loading.

We place the leaves in compost piles so that they will provide a soil conditioner for our parks and other landscaped areas. We do not permit burning the leaves in the streets, since we have found that this damages our asphalt surfacing.

Snow Removal

To help our snow removal work, we have modified our refuse trucks so that they can carry hydraulically operated Meyer snow plows. We assign the trucks to snow work in the hours after they have completed their refuse collection. This multiple use has reduced operating costs and greatly helped our snow clearance work.

We have ample power in our Diamond T trucks and plenty of weight in the refuse bodies to plow our largest snow falls. We use three to four trucks mounted with reversible plows on each street. The snow is cleared from the center-to-curb line in one trip. Each group of plows is followed by a supervisor in a radio-controlled pickup truck, who gives us information on conditions and receives additional routing for plow operation.

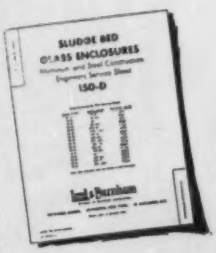
> With public sentiment nothing can fail; without it, nothing can succeed. Consequently he who molds public sentiment goes deeper than he who enacts statutes or pronounces decisions possible or impossible to be executed.
>
> —ABRAHAM LINCOLN

ALUMINUM *Glass Covers*
FOR
SEWAGE TREATMENT PLANTS

Now available in maintenance free aluminum construction with supporting steel framework. For sludge beds, sprinkling filters, tanks or wherever a glass cover is needed.

WRITE FOR NEW VALUABLE ENGINEERS' SERVICE SHEETS

Write today for your new set of Engineers' Service Sheets AC-159 containing details, specifications and recommendations for every job request.



Lord & Burnham
DIVISION OF BURNHAM CORPORATION
IRVINGTON, N. Y. DES PLAINES, ILL.

Longer R·E·A·C·H with TRACTOLOADERS®

Dump it and go...

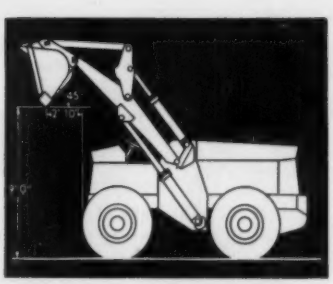
It doesn't matter whether your trucks are seven feet high or nine feet high . . . you load them all faster with the long-reaching TL-20 TRACTOLOADER.

Here this 2-yd loader is dumping right into the center of a 12-ton truck, 8 feet high, 8 feet wide. No wasting time dozing loads with bucket to distribute them evenly. No loading from both sides of truck to get full payloads.

The TL-20 even has enough reach to load gondola and hopper cars! You always have at least 34 inches of usable dumping reach* . . . and with special long booms you can dump to a height of 11 feet, 4 inches, with 39 inches of reach.

Here is another Tractomotive design difference that makes a performance difference — and a profit difference!

Longer-reaching, faster-dumping TRACTOLOADERS are available for both inside and outside use — 2 and 4-wheel drive.



***USABLE DUMPING REACH** is measured from the foremost point of front tires to cutting edge of bucket in dumped position (as illustrated).

TRACTO — a sure sign of modern design

SOLD AND SERVICED BY YOUR ALLIS-CHALMERS CONSTRUCTION MACHINERY DEALER

Send for Free Descriptive Literature

TRACTOMOTIVE

TRACTOMOTIVE CORPORATION • DEERFIELD, ILLINOIS

TRACTOMOTIVE CORPORATION, DEPT. AC
Deerfield, Illinois

☐ Please send TRACTOLOADER literature
☐ Have salesman call

Name.....

Title.....

Company.....

Address.....

City..... State.....

Urban Renewal, Finances, Regional Government

. . . get critical scrutiny at the American Municipal Association meeting in Boston

LAST month, when the nation's mayors, councilmen and other municipal officials met in Boston for the 35th annual Congress of the American Municipal Association to discuss local municipal problems, they learned that:

- **Urban renewal will have a red-hot priority when Congress meets in Washington.**
- **The federal government is not apt to transfer any of its activities or taxing powers to the states and local governments, particularly the states.**
- **The federal budget probably will rise some $3 to $4 billion annually.**
- **A new Department of Urban Affairs at Cabinet level will get strong backing in Congress.**
- **States should liberalize their laws affecting their urban areas.**
- **Local government officials should be more energetic in trying to get the voters to approve bond issues for municipal improvements.**
- **The business of establishing metropolitan government is a tough package to sell the public.**
- **As a practical civil defense measure, local governments should consider establishing a line of succession to the position of chief executive, several men deep.**
- **To help win friends abroad for our country, cities ought to join in the program initiated by the U. S. Information Service sponsoring sister cities in foreign countries.**

Finances

Senator Joseph S. Clark, formerly mayor of Philadelphia, denounced as "folklore" the assertion that federal taxes, expenditures, and debt are too high. Since 1945, the federal debt has remained stable at approximately $275 billion. However during this period, the nation's GNP (gross national product) has more than doubled to $440 billion. Thus, he argued that the federal debt is only half as burdensome as it was 12 years ago.

He rejected the proposal that the federal government turn back to the states and cities certain functions as an economy measure. He argued that this merely transfers it to another tax system, and in his opinion the federal tax system is far superior in justice and efficiency to those of the state or local governments.

The federal budget should rise, he asserted, in company with the natural growth of the country. He estimated that the budget can increase by $3 to $4 billion annually with no change in the tax rate, and if more is needed, it can be obtained by "closing the outrageous tax loopholes which made our Federal Internal Revenue Code a veritable sieve." He expressed his strong belief that governmental budgets at all levels, local, state, and national, should be brought into balance. And he argued for the creation at cabinet level of a Department of Urban Affairs in the federal government.

Home rule needed plus more local action

Congressman L. H. Fountain of North Carolina chided both state and local governments for lack of action, stating:

> **While state government must assume a large share of the blame for obstructing local self-government, this does not absolve municipal officials and local citizens of an obligation to exert greater effort for the improvement of those conditions, nor does it automatically justify reliance on Federal Aid. How many proposed bond issues and constitutional amendments, we might ask ourselves, have been defeated at the polls because local officials did not do an effective job of educating the voters as to their merits? I must frankly question whether the cities are doing all that they might to solve their problems.**

He asked, as a first order of business, for action by state legislatures enlarging local taxing and home rule powers. At the local level, he asked for bold experimentation with methods to meet metropolitan needs. He also suggested that cities make use of planning grants such as that authorized for certain urban areas under provisions of the federal Housing Act.

Senator Jacob K. Javits, New York, proposed a 15-year, $10 billion urban renewal program with the federal contribution not exceeding two-thirds of the urban renewal costs.

Planning, Urban Renewal

Further explanation of planning assistance came from Walker Mason, Deputy Administrator, Housing and Home Finance Agency. City and metropolitan planning, he stated, are assisted through a program of matching grants administered by the federal Urban Renewal Administration. This can be used in the design and scheduling of local public works through the Community Facilities Administration provides planning advances to assist communities to analyze their blighted areas and develop technical assistance to local housing authorities in planning low-rent housing projects, and also finances it through federal planning advances. Through the Urban Renewal Administration, HHFA provides Federal financial assistance to buy, clear and prepare slum areas for new uses, furnishing two-thirds of the difference between the slum cost and the price paid by private redevelopers.

Urban Renewal Administration also provides advances for planning of rehabilitation and conservation of areas subject to blighting influences. HHFA provides several forms of assistance to communities in rehousing families displaced by urban renewal activities.

Metropolitan Government Roadblocks

The ticklish problem of metropolitan government apparently needs its bold solutions well seasoned with caution, according to reports from ***Seattle, Wash.*** and ***Nashville, Tenn.***, two areas that tried to initiate such programs and ran into disappointing roadblocks.

In Seattle, Mayor Gordon S. Clin-

4,000 Years of Automatic Voting Machines

Sounds incredible? . . . Perhaps so, but the more than 450 people directly concerned with the manufacture, sale, and service of Automatic Voting Machines average more than *nine years* of service with the company (some with as much as 56 years). This adds up to more than 4,000 years of accumulated "know-how" at your service. It adds up to something else, too . . . that this record could only be established with a product meeting a real need in our democratic way of life.

Available for Service Clubs and other interested gatherings, by 60 day reservation—a new 18 minute 16 mm color film illustrating potential benefits of Automatic Voting Machines.

PRODUCTS FOR PUBLIC GOOD

AUTOMATIC VOTING MACHINE CORPORATION Jamestown, N. Y.

A Complete Line of

HAYWARD ORANGE PEEL BUCKETS

for every digging and rehandling need!

STANDARD ORANGE PEEL for sand, gravel, loam, etc.

HEAVY ORANGE PEEL for excavating, dredging and general contracting work.

MULTI-POWER ORANGE PEEL for hard, compact materials such as clay, gumbo, sand, etc.

THREE BLADE ORANGE PEEL with reinforced backs for rocks, stumps, piling, etc.

Plus Dwarf and Catch-Basin Buckets

Write for illustrated bulletin giving full details including weights and dimensions.

THE HAYWARD COMPANY
50 CHURCH ST., DEP'T A, NEW YORK 7, N. Y.
Builders of Better Buckets Since 1888

NOW!

a **NEW** solid-color PVC

POLY-CONE*

tough, durable, no seams, will not CRACK, TEAR or BREAK!

This new SAFE-T-CONE never needs repainting. Just wash it with soap or solvents. Made of polyvinyl-chloride to produce the toughest, *most durable cone on the market.* Outlasts ordinary cone many times . . . . without upkeep!

**Polyvinyl-chloride*

2191

SAFE-T-CONE®
TRAFFIC GUIDES

All-Rubber SAFE-T-CONES available in 3 SIZES!

Painted or Reflectorized ALL RUBBER

Regular all-rubber SAFE-T-CONES, now better than ever. Painted standard red and yellow or reflectorized.

Plastic or All-Rubber FLUORESCENT

New Poly-Cones and All-Rubber cones available in brilliant orange-red fluorescent for extra brilliance, day or night.

SAFE-T-CONES made only by **Radiator Specialty Co.**
Charlotte, N. C.

ton felt that he had to provide leadership in formulating some practical solution to problems that did not end with geographical limits of his city. He obtained the support of the county commissioners in appointing a 77-member citizens' committee to recommend action, and joined with the county and state to get an engineering study of sewerage needs on a metropolitan basis.

The citizens' committee proposed a metropolitan council devoted to the functions of sewage disposal; water supply; public transportation; parks and parkways; refuse disposal; and comprehensive planning. But when the Metro Corporation proposition was presented to the voters, it was killed by the suburbs, despite an aggressive campaign for approval.

However, Mayor Clinton, together with mayors of neighboring towns, met to reassess the problem, and decided to concentrate on the first, most pressing problem—that of sewage disposal. With the help of the citizens' committee, they resubmitted the proposal, limiting the function of Metro to this one subject, and including a smaller area. This time, they won approval, emphasizing sanitation rather than the Metro concept.

In Nashville, Mayor Ben West explained, a similar metropolitan charter was prepared after much hard work by people within the city and outside. It offered a pattern for a unified local government, completely replacing both, the existing city and county governments. Nevertheless it also lost, and Mayor West doubted that it would rise again unless unified citizen action demanded it.

New Officers

Mayor Anthony J. Celebrezze, Cleveland, Ohio, was elected President of the Association for the forthcoming year.

Elected to the Executive Committee for two-year terms were: Don Hummel, mayor, Tucson, Ariz.; Haydon Burns, mayor, Jacksonville, Fla.; Russell P. Smith, mayor, Cambridge, Md.; Stephen J. Matthews, executive secretary, Texas Municipal League; Ed. E. Reid, executive director, Alabama League of Municipalities; and Ed Johnson, executive secretary, League of Wisconsin Municipalities.

Reports on Air Pollution Control Work Issued

FOUR REPORTS, which should be of interest to those in air pollution control work, have been issued recently.

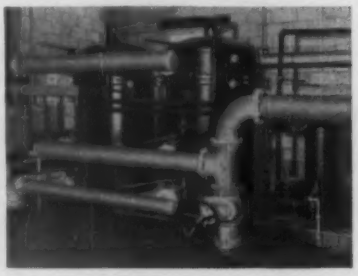
The Bureau of Air Pollution of Perth Amboy, N. J. has issued a progress report for the period from mid-June 1957 to August 1, 1958.

The Air Pollution Foundation, San Marino, Calif., has published its Technical Report No. 26, *Air Pollution Effects of Irradiated Automobile Exhaust as Related to Fuel Consumption.*

The ninth annual *Report of Activities* has been issued by the Allegheny County Bureau of Smoke Control, Pittsburgh.

The 1957 *Annual Report* of the Baltimore Bureau of Industrial Hygiene, which contains a section on the work of the Division of Air Pollution control has recently been published.

- BAKER PARK MUNICIPAL POOL, Frederick, Maryland, 400,000 gallons
- Filter System Design, W. R. Walter, City Engineer, Frederick, Maryland
- Filters: 2-SPF-169 R. P. Adams Company, Inc.



Shown is a typical Adams SPF Swimming Pool Filter installation. These filters are available in a wide range of sizes for pools of 50,000 to several million gallons capacity. All sizes are normally available from stock. We do not offer a filter for backyard pools.

HERE'S WHY
MANY CITIES INSIST ON
ADAMS
Swimming Pool Filters

- **LOWER INSTALLATION COSTS** because it takes only a fraction of the floor space of sand filters . . . does not require massive concrete foundations.
- **TROUBLE-FREE OPERATION** . . . you never have to disassemble it for cleaning . . . as one city engineer said, "Yours is the only diatomite filter with backwashing that works".
- **PERMANENT PORO-STONE MEDIA** is inert to chemical corrosion and electrolytic action of chlorinated water. —All Adams SPF filters now in service are still equipped with the original tubes.
- **QUALITY IN EVERY PART** . . . stainless steel support rods and nuts for the tubes . . . galvanized forged steel closure plates and clips . . . *three* coats of vinyl plastic lining on sand blasted inner surfaces.

The R. P. Adams Company is the nation's largest manufacturer of filters exclusively for municipal, commercial and institutional pools.

For detailed information, write for our new technical Bulletin 626. It was prepared to help you with your swimming pool filter problems.

Our diatomite filters for municipal water supplies is discussed in Bulletin 651. Ask for it at the same time.

R. P. ADAMS CO., Inc. • **202 East Park Drive, Buffalo 17, N. Y.**

FITCHBURG CHIPPER

"OPERATES 1693 HOURS without a breakdown of any kind!"

WELDON S. CAMPBELL
64 MUNSON STREET
GREENFIELD, MASSACHUSETTS

February 4, 1958

Fitchburg Engineering Corporation
Fitchburg, Mass.
Mr. Perini, Superintendent

Dear Sir:

On March 23, 1955, we purchased one of your Chippers. You may be interested to know that this machine operated a total of 1,693 hours without a breakdown of any kind. Inasmuch as we are paid for running time only we often start up the chipper 20 or more times daily.

We have followed faithfully your instructions in using a hone on the knives each morning, we find that by doing this we can use the knives for five weeks before sharpening. Even then only about 12 thousands are needed to bring them back.

Contractors find your chipper is ideal and saves them much time and dollars in clearing a woodland area before bull dozing begins.

Your Engineering skill and knowhow has resulted in the finest of all Chippers and I have seen them all in operation.

Hauling time is reduced two-thirds, this results in a large saving in gasoline, parts and labor. I would never again be without one.

Respectfully,

Weldon S. Campbell

Weldon S. Campbell
Tree Warden & Moth Supt.
Greenfield, Mass.

"Our Fitchburg Chipper has been inexpensive to maintain and trouble-free in operation, and has meant a great saving to us in time and labor."
—F. A. Canuso & Sons, Inc.
Philadelphia, Pennsylvania

"During about 2,000 operating hours we have suffered neither employee accident due to chipper operation, nor major mechanical failure."
—Northern Tree Company, Inc.
Petoskey, Michigan

"The Fitchburg Chipper is well constructed. The machine is trouble-free and easily maintained."
—John Glasgow, Supt. of P. W.
Township of Mahwah, New Jersey

Fitchburg Wood Chippers are engineered to stand hard use, to give long service without excessive maintenance costs.

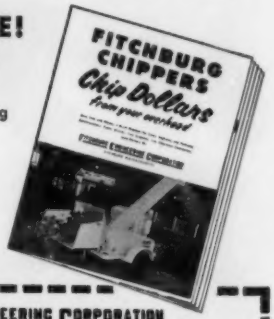
That's the "reason why" successful men like Weldon Campbell prefer Fitchburg for the tough brush removal jobs.

Fitchburg Chippers are designed by engineers for busy, trouble-free service. The exclusive spring-activated feed plate adjusts itself automatically—provides protection from damaging foreign material—assures smooth, efficient operation. The power take-off clutch gives safe starts and stops. There's no fly wheel to cause bearing trouble. These features keep a Fitchburg Chipper on the job . . . save you time and money.

Read (at right) what others say about their Fitchburg Wood Chippers, and send for your free copy of "Chip Dollars" today.

NEW! FREE!
Book of Facts

Detailed cutaway drawings of Fitchburg Chipper in color. Specifications, diagrams, charts, plus money-saving reports and experiences of others.



FITCHBURG ENGINEERING CORPORATION
Fitchburg, Mass., AC-19
Send Free Copy of "Chip Dollars from Your Overhead"

Name.....
Position.....
Company.....
City or Town.....State.....

FITCHBURG ENGINEERING CORPORATION FITCHBURG, MASS.

TRU BLU
TOOLS BY WOOD
SHOVELS, SPADES, SCOOPS WITH BLADES OF ALUMINUM, MOLYBDENUM ALLOY AND HIGH CARBON STEEL.
HEADQUARTERS for industrial shovels, forks, wheelbarrows.
INDUSTRIAL GRADE FORKS, HOOKS, HOES, RAKES. FORGED STEEL HEADS.
BARROWS ALL TYPES
MORTAR PANS, BOXES
Ask your industrial supply house, or write—
THE WOOD SHOVEL & TOOL CO. PIQUA, OHIO

Pittsburgh's New Zoning Ordinance

. . . anticipates future and use arrangements, has unusual provision regulating advertising signs

By E. B. FORREST, AIP-AM
Zoning Engineer
Department of City Planning
Pittsburgh, Pa.

ON Saturday, May 10, 1958 Mayor David Lawrence of Pittsburgh, Pa. signed into effect a new zoning ordinance. This new ordinance is the product of 10 years of study and research and replaces a 1923 zoning ordinance which had been amended to death—527 times in all.

Pittsburgh was one of the first cities to recognize the need for zoning. Its first ordinance stabilized land values and regulated indiscriminate land use development; but, it failed to provide for the future arrangement of land uses in relation to other public and private facilities.

Therefore, during 1947-1948 the City Planning Commission adopted a "master" plan concerning the future arrangement of land uses. This master plan then served as one of the bases for the new ordinance.

Noncumulative Zoning

One of the major features of the new ordinance is the inclusion of the new concept of noncumulative or one-purpose zoning districts. For example, only commercial uses are permitted in commercial zones, and commercial enterprises are excluded from industrial districts. Also, noncumulative zoning specified the same requirements for particular residential building types regardless of which district they are located in.

Major Traffic Thoroughfares

Certain existing traffic arteries and the prospective highway network have been designed as *major traffic thoroughfares* by the ordinance. Properties adjacent to these thoroughfares have special regulations. For example, every new commercial or industrial development fronting on a major traffic thoroughfare is required to have site plan approval by the Planning Commission before an occupancy permit can be issued. In addition, advertising signs are regulated. Advertising signs established after the enactment of this ordinance must be removed at the owner's expense when a future restricted access highway is designated and when such signs are in the prohibited area.

Special Zoning Districts

The new ordinance creates several special districts to meet special local problems or conditions. The most important of these is the *Special "S" District*, which encompasses about 29% of the gross area of the city. This *"S" District* is intended to include the major public or semi-public open spaces of Pittsburgh, the large parks and the cemeteries, and the steeper slopes where the economics of building do not justify individual building development. Permitted uses in this district are very limited and in general include only such uses as nonprofit recreation areas, public utility structures and installations, cemeteries, farming and truck gardening, radio or television transmission, and railroad rights of way. One-family dwellings are permitted under special conditions. Major excavations, grading and filling operations, except when in connection with foundations for structures, is allowed only in this district.

Another special district is the *"I"*, or *International-Civic*, District which is designed to cover that part of Pittsburgh having a large concentration of hospitals, civic and cultural buildings, and the campuses of the University of Pittsburgh, Carnegie Institute of Technology and Mount St. Mercy Academy. By establishing this zone, its institutional type of development will be encouraged and protected.

Off-Street Parking

A separate article of the ordinance is devoted to off-street automobile parking and off-street loading of

materials. Considerable attention is given to where, and under what conditions, different types of parking facilities may be permitted.

Administrative Practice

The administrative weaknesses of the old ordinance are corrected in this new one. It lists specific requirements with necessary factual information, the step-by-step procedure for obtaining occupancy permits; certain exemptions and variances provided for in the ordinance; and amendments to the zoning district map.

Also required is that when a zoning change is under consideration, both the existing and the proposed regulations must be conformed with during the interim period.

In proceedings before the Planning Commission, Board of Adjustment and City Council, individual notice is mandatory to certain property owners.

Other features of the new ordinance include landscaped *buffer* space between residential and commercial or industrial zones, and provisions for high-rise apartments in certain areas without increasing land use intensity.

Ordinance by City Planning Commission

This ordinance has been prepared by the City Planning Commission and its own permanent technical staff, rather than by an outside consultant. Citizen assistance was given by 18 different organizations selected by the mayor, and special technical help was given by other local organizations in the fields of commerce, industry, housing, etc. The end result has been that Pittsburgh has obtained for itself a modern ordinance, adjusted to local conditions by local people and expected to provide the proper zoning for Pittsburgh's future advancement and growth.

The Deeper the Well, The Hotter the Water

GARLAND, TEXAS apparently has evidence that the deeper one goes into the earth, the higher the temperature rises. This city, lying 15 miles east of Dallas, drilled a well 3,600 feet deep and struck water with a temperature of 125° F and high in sodium bicarbonate and total solids.

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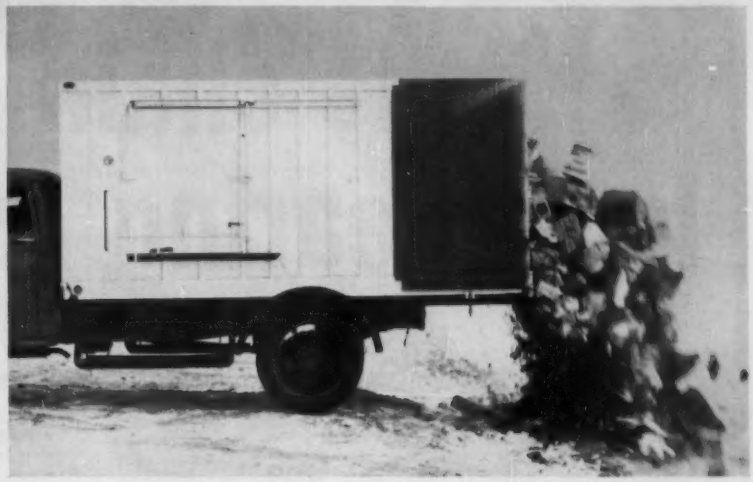

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Powerful progressive compaction gives you big full body capacity loads fast . . . packs anything . . . one haul does it all. Before you buy any packer, ask for a demonstration of the M-B *first*, for lower cost per ton refuse handling.

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LOADING DOOR LATCH

Only M-B offers positive safety latches on the loading doors, keeping the packing plate from moving if the doors are open.

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Collectors need not step into the street to load, endangered by passing traffic. It's easier for the driver to see the men while loading or riding to the next stop.

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MUNICIPAL EQUIPMENT SINCE 1907

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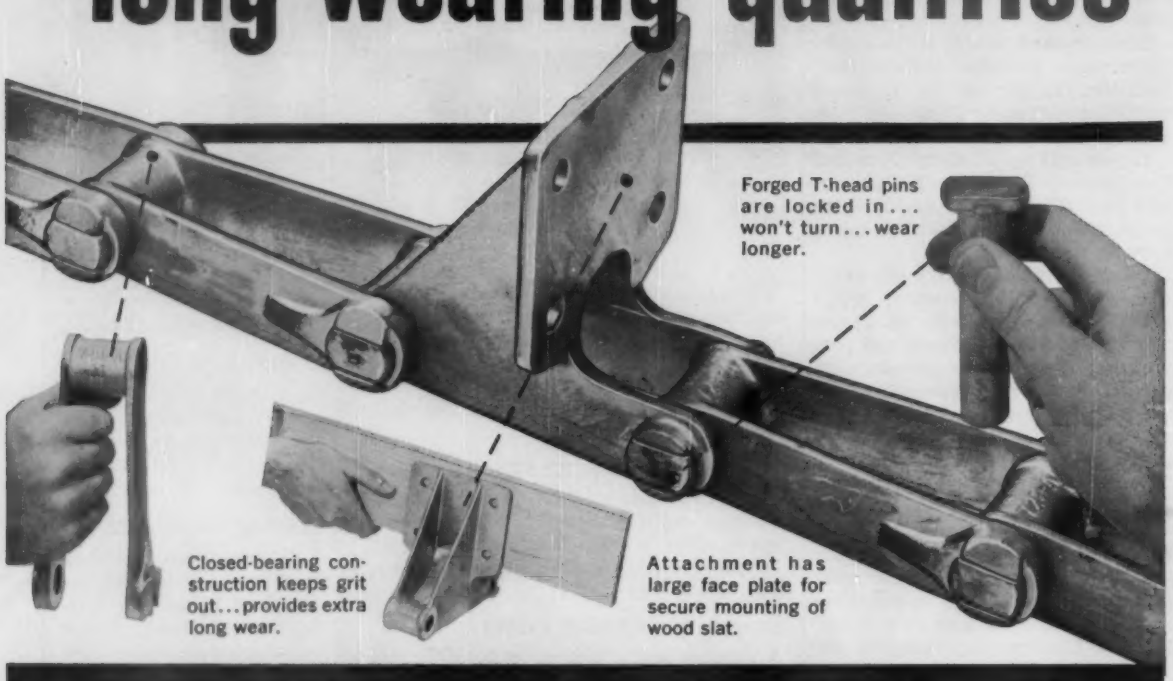
PACKER BODIES

LINE MARKERS

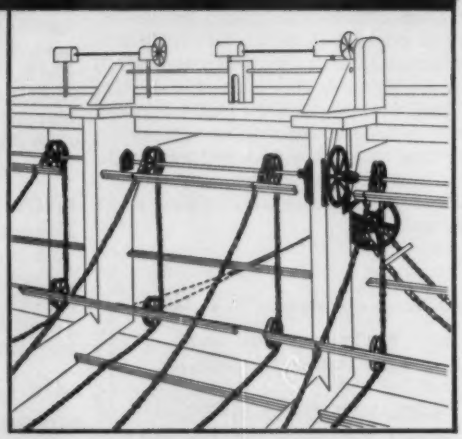
SWEEPERS

Why Moline long pitch pintle chain has long wearing qualities


Forged T-head pins are locked in... won't turn... wear longer.
Closed-bearing construction keeps grit out... provides extra long wear.
Attachment has large face plate for secure mounting of wood slat.

For a serviceable, long wearing chain at a moderate price, sewage treatment plants prefer Moline Long Pitch Pintle Chain. It is designed and proportioned to provide great strength at minimum weight... is stronger than detachable chain and less subject to wear. Moline Pintle Chain is assembled with forged T-head pins with cotters. This construction prevents the pins from turning... prevents the entrance of grit... minimizes wear. Special analysis metal with superior corrosion resistance is available in this chain.

Write for information and prices or phone your local Moline representative.



LEADERS FOR 60 YEARS

Moline MALLEABLE Chains

MOLINE MALLEABLE IRON CO.
St. Charles, Illinois
Specializing in the Manufacture of Chains

Old Street Electroliers Become New Park Lights

(Continued from page 13)

Park crews assembled the electrolier sections, sanded and spray-painted them with green automotive enamel. At the same time other crews were forming and pouring the cement bases with anchor rods and conduit bends in place. As soon as the concrete hardened the electroliers were installed to prevent vandals from bending the anchor rods out of position.

To install the conduit, we first planned to rent a mechanical trencher, since the city does not own this type of equipment. In order to keep down the rental costs we considered that it would be necessary to keep the trencher in operation continuously each day. However, this operation would mean that trenches would be exposed, curtailing the use of the park.

Rejecting this idea, we decided to improvise some practical type of trenching attachment for use with our light park wheel tractors. After considering several ideas, we mounted a farm furrowing sweep on a soil shank attached to a tool bar and mounted the assembly on the Ferguson hydraulic implement hook up system. The improvised tool could then be quickly interchanged for a blade for backfilling trenches. The sweep was cut and shaped to the desired trench width with an acetylene cutting torch.

This is a standard assembly used in this area for farming operations to make V-shaped irrigation channels between row crops. By modifying the shape of the sweep, we were able to use the equipment to cut a trench with vertical sides.

This improvision worked very well except that loose dirt fell back in the trench and would have to be laboriously handshoveled out. To eliminate this problem two metal wings, bolted to the soil shank, effectively moved the dirt away from the trench during cutting operations. A series of bolt holes were drilled in the wings to provide for adjustments to various trench depths.

An operator on the Ferguson tractor, with the trencher and a Ferguson terracing blade, quickly interchangeable, could dig enough trenches to keep ahead of the crews laying the conduit and then swiftly switch to the angle blade attachment and backfill the same day, leaving no exposed trenches. Two or three quick passes were required, depending on soil conditions.

After the conduit was laid and trenches were backfilled and leveled, the street lighting crews then pulled in the wiring, installed the lamps and globes and connected the entire circuit on automatic time controls.

Cost of new materials averaged $68.89 per electrolier installed.

The great success of this project was reflected by the many favorable comments received from city residents and community organizations. Accordingly, plans were prepared to install the used electroliers in other city parks. Up to the present time 9 of the 11 Bakersfield Parks have been lighted with the used electroliers. Funds have been appropriated to complete lighting in the remaining two parks during fiscal year 1958-1959.

REPRESENTATIVE MUNICIPAL BOND ISSUES

November 6, 1958 to December 3, 1958

Date of Issue			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost or Basis (Per Cent)*
11/ 6/58	Gloversville, N. Y.	$ 187,000	Paving; Swimming Pool	5 1/6	2.86
11/ 6/58	New Ulm, Minn.	72,000	Local Improvement	4 1/2	2.72
11/ 6/58	Springfield, Mass.	940,000	Parking Garage	10	2.83
11/ 7/58	Deal, N. J.	473,000	Beach Improvement	8 1/6	3.44
11/10/58	Surfside, Fla.	375,000	Parking	14	4.097 (net)
		150,000	Parking	17 3/4	4.097 (net)
11/17/58	Tullahoma, Tenn.	445,000	Water and Sewer	19 1/2	3.865 (net)
11/18/58	Claremont, N. H.	43,000	Bridge	5 1/4	2.95
11/18/58	Savannah, Ga.	300,000	General Obligation	16 1/2	3.56
11/19/58	Piedmont, Que.	52,000	Water Works, Fire Protection, Debt Consolidation	5 1/2	5.600 (net)
11/21/58	Wallingford, Conn.	1,797,000	Sewer	11	3.1875 (net)
11/25/58	New York, N. Y.	21,000,000	School Construction	8	3.1715 (net)
		1,500,000	School Construction	5 1/2	3.1715 (net)
		10,500,000	Various Municipal Uses	3	3.1715 (net)
11/29/58	Vermillion, Ohio	30,000	Paving Assesment	6 1/2	3.69
12/ 2/58	Salem, Ind.	380,000	Waterworks Revenue	13 1/2	4.24
12/ 3/58	Lynn, Mass.	250,000	Municipal Relief	1 1/2	2.08

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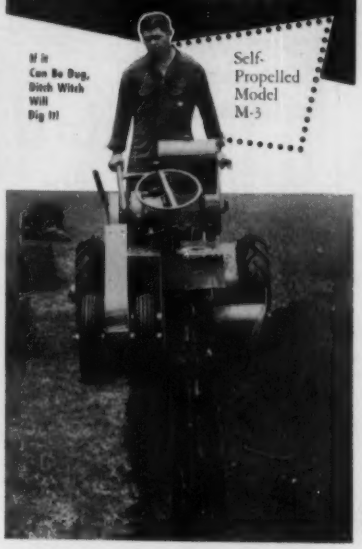

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SPECIFICATIONS:
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3 MPH Mobility
Digs up to 6 FPM, As Much as 4 Ft. Deep
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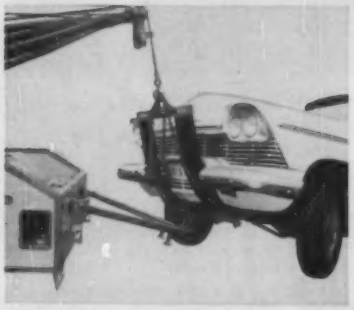

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Blighted Vacant Land—Industrial Redevelopment

ILLINOIS. *People* ex rel. *Adamowski* v. *Chicago Land Clearance Commission*, 150 North Eastern (2d) 792 (Supreme (highest) Court, May 21, 1958).

This case involved a further challenge to the Illinois legislation providing for condemnation and private redevelopment of "blighted vacant areas." In the first *Gutknecht* case (*People* ex rel. *Gutknecht* v. *City of Chicago*, 414 Illinois 600, 111 North Eastern (2d) 626 (1953), the Illinois Court upheld these provisions in a case involving residential redevelopment. However, the statutory provisions (as amended) authorized redevelopment for "residential or other use," and the present case involved the question of proposed nonresidential redevelopment.

In the opinion, the Court reviewed the rather considerable volume of Illinois constitutional provisions, statutes, and litigation. In doing so, it was re-emphasized that

> "This court and other courts have repeatedly held that the acquisition of a slum and blighted area and the removal of slum conditions is in and of itself a public purpose regardless of the use thereafter made of the property."

Therefore, as long as the statute involved elimination of blight, it was immaterial whether the redevelopment was for residential or non-residential purposes. The Court also held that there were adequate standards to determine the feasibility of residential redevelopment, and noted the desirability of using the expert authority of the Planning Commission to determine the desirable reuse. The proposed nonresidential redevelopment was therefore upheld, by a vote of 5 to 2. In the dissenting opinion, it was argued that the existence of a housing shortage had been a major factor in the holding in the first *Gutknecht* case, and it was also emphasized that the statutory requirement of an approved development plan before condemnation was eliminated in the statutory amendment. This opinion denied that the public interest in the marketability of land, and the general arguments about promoting prosperity and welfare, were sufficient to justify condemnation for non-residential purposes.

Private Nursery School In Residence District

NEW YORK. *Application of Merrick Community Nursery School* v. *Young*, 171 New York Supplement (2d) 522 (Supreme (lower) Court, January 23, 1958).

In this case, an amendment to the Hempstead zoning regulations excluded nursery schools from residence districts, where all other schools were permitted, and in fact made them special-permit uses even in business districts. The proposed operators of a nursery school argued that nursery schools could not be excluded from residence districts, on the grounds that public schools could not be excluded, and that no valid distinction could be made between public and private schools.

In the opinion, the Court noted that private nursery schools might cause some disturbance in a residential district.

> "The Court is well aware of the objections which can be presented to the location of a private nursery school in any residential district. They tend to have an adverse effect on the value of homes in the immediate vicinity, they may create traffic congestion, and with outdoor play facilities they can disturb the peace and quiet of a neighborhood."

However, it was pointed out that the Court of Appeals had recently held explicitly that churches and schools could not be excluded from residence districts, and that there was no distinction in this respect between public and private schools.

Acreage Zoning

NEW JERSEY. *Bogert* v. *Township of Washington*, 135 Atlantic (2d) 1 (Supreme (highest) Court, October 7, 1957).

In this case, Washington Township, a small community in Bergen County which —apart from one small shopping area— was entirely residential, upgraded a residential area from a half-acre district to a one-acre district. After a public hearing on the proposed change, the rezoning ordinance was amended so that the area upgraded was mostly along one side of a main street, but included a small strip less than a block on the opposite (south) side of that street. The Court upheld the rezoning of the latter strip, with one dissent.

In the opinion, the Court began with a good statement of the general criteria for judging such cases.

> "A community is not required to select the best of all possible classifications, but the classification must be reasonable, without arbitrary discrimination, and made with the intent to provide for the best interests of all the community in the foreseeable future. It is basic to a zoning policy that all property in like circumstances is to be treated alike, and the restraints on the uses of property must be general and uniform in a particular district. The essence of zoning is a territorial division in consonance with the character of the lands and structures and their peculiar suitability for particular uses, and uniformity of use within the division.
>
> "Zoning involves more than looking at a map and drawing what appears to be logical or natural boundaries. It is more than an exercise in plane geometry. The mere observation of a plat map, tax map, or zoning map will lead to misleading abstract deduction and error in the application of the above stated principles.
>
> "There are many considerations which may validly apply to influence the way property in a district may be classified. Important among them are are the prior existing uses in the district, the natural contours and topographical features of the land, in some instances the geological strata of the land with particular relation to the effect of drainage and seepage upon water and sewage problems.
>
> "There is a presumption that such a judgment is valid.
>
> "A property owner attacking the validity of a zoning ordinance has the burden of overthrowing such presumption. It is not always necessary that the property owner prove that the effect of the regulation is to leave the property without any use to him. Such a restraint of all use is patently confiscatory and thus beyond the police power and statutory authorization. But the property owner does have the burden of proving that there has been a manifestly arbitrary and unreasonable deviation from the principle that the essence of zoning is a territorial division in consonance with "the character of the lands and structures and their peculiar suitability for particular uses, and a general uniformity of the restraints on the uses within a division or classification."

Turning to the specific case, the Court remarked that the Township's witnesses

> "were largely influenced by the definition of the purposes of zoning and testified in a ritualistic manner that the zoning of the appellants' property in the AAA (1-acre) classification would lessen congestion, secure safety from fire, prevent overcrowding of the land, guard against traffic problems, etc.
>
> "Such testimony simply answers the question why the AAA classification was created in the first place. It does not answer the question herein, why the appellants' property in Block 1202 was placed in the AAA classification and the balance of that block and the other property south of Washington Avenue was placed in the AAA (half-acre) classification."

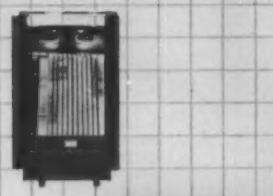
The rezoning was upheld in large part on the ground that the boundaries as drawn managed to avoid creating too many non-conforming uses—and also partly because the topography tended to support the rezoning classification. The problem of sewage disposal, without public sewers, was also cited. However, a contention that the more restrictive zoning would prevent traffic congestion at a nearby intersection was rejected, on the ground that the difference in congestion there would not be much.

> "Municipalities must expect to incur additional expense from minor traffic problems in rapidly growing communities, and they have ample power to regulate such problems by means other than attempting to eliminate such minor traffic problems, rather than by the restrictive use of the zoning power. This zoning power should only be used to deal with such problems in their major aspects as they affect the entire community or major portions hereof."

The paragraph last quoted provides some welcome good sense on the question of the proper relationship between zoning and traffic congestion. The real problem is not one of possible congestion at a particular intersection—a problem which is properly one of traffic control and policing—but one of the overall impact on the area.

Legal Notes and Decisions

The Voting Machine That Looks Like a Ballot!



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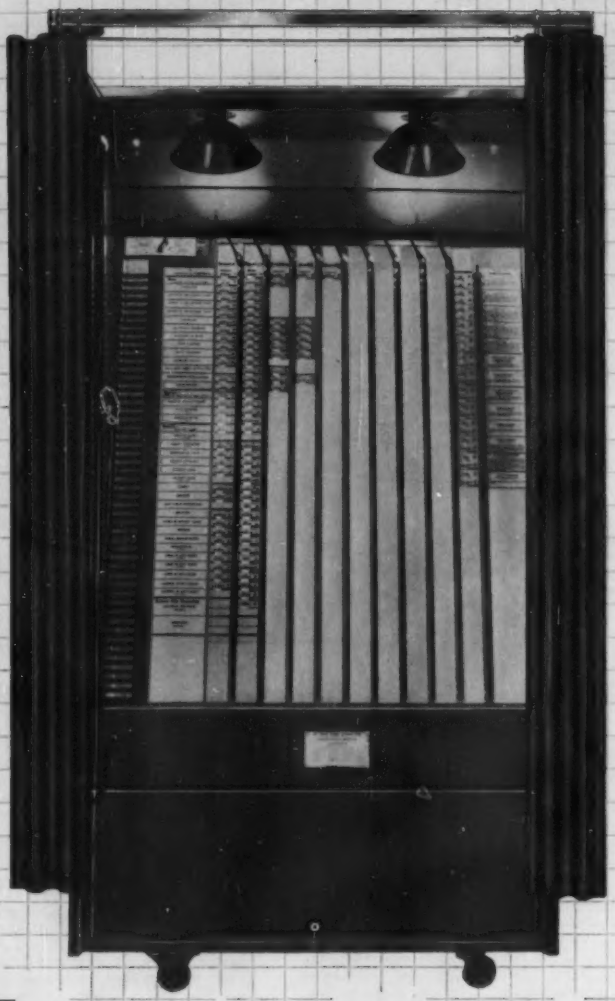

The ABC's of Superiority...

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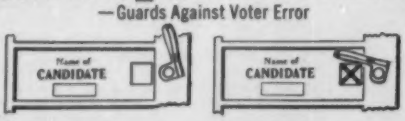
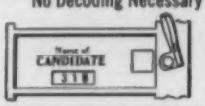


C. INSTANTANEOUS RESULTS BY CANDIDATE'S NAME
Directly on the Face of the Machine—
No Decoding Necessary



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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Airports—
Exclusive Taxicab Franchise at—Ruled Invalid

In action by taxicab companies to invalidate exclusive, revocable concession for operation of taxicabs over concourse in front of airport after parking meters had been installed on concourse and tickets charging trespasses on private property had been handed out, held, concession invalid since concourse had been dedicated along with highways, streets and approaches to public use though airport was operated in proprietary capacity. *City and County of Denver* v. *Publix Cab Co.*, 308 P.2d 1016 (Colo., Mar. 25, 1957)

Buildings—
Lease By City—Debt Limit

In action by state's attorney to challenge validity of Public Building Commission Act authorizing Commission to acquire, construct and then lease buildings to municipal corporations for up to 50 years, held, act valid but lease creates present debt for aggregate of all rentals and violates constitutional requirement that principal of municipal debts be paid within 20 years though debt or rental bears no interest. *People ex rel. Adamowski* v. *Public Building Commission of Chicago*, 143 N.E.2d 67 (Ill., Mar. 20, 1957)

Demolition of Building Denied

In action to require owners to tear down building or to enjoin owners from interfering with city in demolishing it, held, demolition denied since evidence established that repairs needed at day of trial were not such to amount to substantial reconstruction. *West* v. *City of Borger*, 309 S.W.2d 250 (Tex. Civ. App., Jan. 20, 1958).

Easement Obtained Under Unenforceable Contract

In action by property owner against city for breach of "contract" whereby city acquired easement across plaintiff's property on promise that property so conveyed would be used by city in specific manner that would materially benefit plaintiff and that city would compensate plaintiff for his property after city conveyed property to Highway Department in derogation of contract, held, city was not relieved of obligation to pay fair and just value of property rights which it acquired even though contract was unenforceable. *Bessemer Improvement Co.* v. *City of Greensboro*, 101 S.E.2d 336 (N.C., Jan. 10, 1958)

False Arrest Dismissed As to Railroad Detective Whom City Granted Arresting Powers

In action for false arrest by railroad watchman possessing license issued by City of St. Louis, held, action dismissed since city had granted watchman power of arrest equivalent to that possessed by regular policeman. *Frank* v. *Wabash R.R.*, 295 S.W.2d 16 (Mo., Oct. 8, 1956)

Garbage—
Importation of Allowed

In action to enjoin portions of ordinance prohibiting transportation of garbage originating outside city and prohibiting dumping garbage of outside origin, held, ordinance invalid. *Wiggins* v. *Town of Somers*, 161 N.Y.S.2d 966 (N.Y. Sup. Ct. Westchester Cty., Apr. 2, 1957)

Junkyard—
Denial of Permit for Invalid

Denial of permit to operate junkyard by mayor and council was not proper exercise of police power delegated to town, *Mayor and Council of Town of Bladenburg* v. *Berg*, 139 A.2d 703 (Md., Mar. 26, 1958)

Milk Ordinance Invalidated—
State Graded Farm

In action to enjoin ordinance prohibiting retail sale of unpasteurized milk in city, held, ordinance invalid exercise of police power as to wholesome grade "A" raw milk produced on farm rated by state department of public health as grade "A." *Melton* v. *City of Weslaco*, 301 S.W.2d 470 (Tex. Civ. App., Apr. 10, 1957)

Offenses—
Retrial After Hung Jury Upheld

In prosecution for drunken driving where in prior prosecution jury had disagreed, held, defendant could be tried again, *City of Washington Court House* v. *Carson*, 143 N.E.2d 853 (Ohio App., Nov. 2, 1956)

Parking—Owner of "U-Drive-It" Not Guilty for Patrons' Violations

In prosecutions of owner of "driv-ur-self" automobile that was parked overtime while in possession of patron under Little Rock ordinance making it unlawful for registered owner of vehicle to permit or allow vehicle to be parked overtime, held, not guilty since evidence showed defendant did not commit traffic violations. *Red Top Driv-Ur-Self* v. *Potts*, 300 S.W.2d 261 (Ark., Apr. 1, 1957)

Peddlers—Ordinance Repealed

In prosecution under "Green River Ordinance" where after lower courts had convicted defendants and ordered them to pay fine, ordinance was repealed in referendum, held, convictions set aside since proceedings were civil, question had become moot, and since repealing ordinance contained no saving clause. *Circle* v. *City of Colorado Springs*, 312 P.2d 509 (Colo., June 17, 1957)

Policeman—Discharge for Justifiable Insubordination Invalid

In action to review discharge of policeman who refused to obey unconstitutional order of chief of police issued under Oakwood ordinance prohibiting city employees from parking during duty hours in several places reserved by custom for use by adjoining businessmen, held, discharge reversed and reinstatement ordered. *Roller* v. *Stoecklein*, 143 N.E.2d 181 (Ohio C.P., Apr. 24, 1957)

Political Promises Not Binding On City

In action against mayor and City of New York for alleged fraud and deceit when mayor failed to keep promise of appointment to city job in consideration of political campaign work, held, relief denied since agreement was against public policy and unauthorized, and plaintiff was chargeable with notice that under New York Charter, mayor had no authority to appoint. *Brill* v. *Wagner*, 161 N.Y.S.2d 490 (N.Y. Sup. Ct., Queens Cty., Mar. 5, 1957)

Restaurant License Suspension Upheld

Suspension of restaurant license because of lack of control of business and violation of alcoholic beverage control law was valid though some of evidence presented before board would have been objectionable as heresay in courts of law. *Dubato* v. *Board of Trustees of Village of Bayville*, 166 N.Y.S.2d 971 (N.Y. Sup. Ct., Nassau Cty., Aug. 9, 1957)

School Tax on Pinball Machines and Drive-In Upheld

Imposition of amusement tax on pinball machines and admissions tax on drive-in theaters and roller-skating rinks did not violate constitutional provision that all taxes must be uniform upon same class of subjects within territorial limits of authority levying tax. *Coe* v. *Duffield*, 138 A.2d 303 (Pa., Jan. 21, 1958)

Segregation on Golf Course Enjoined

Restricting use of city's golfing facilities to one day each week as to Negro residents was unconstitutional. *Ward* v. *City of Miami, Florida*, 151 F. Supp. 593 (S.D. Fla., Apr. 30, 1957)

Street Improvement May Not Be Compelled

In action for mandamus to compel improvement of street or for grant of permission to improve it themselves, held, action dismissed since matter was well within sound discretion of village. *Hillyard* v. *Chevy Chase Village*, 137 A.2d 555 (Md., Jan. 14, 1958)

Subdivision Regulations—
$500 Sewer Payment Upheld

In action to invalidate Glen Cove ordinance requiring payment of $500 per housing unit for sewer system before building permit could be issued at time of filing of subdivision plat, held, ordinance valid and did not violate due process or equal protection clauses of constitutions. *Stanco* v. *Suozzi*, 171 N.Y.S.2d 997 (N.Y.Sup. Ct., Nassau Cty., Feb. 21, 1958)

Taxation—
Industry Exemption Repealed

In action by manufacturers and taxpayers to invalidate ordinance repealing manufacturers' tax exemption, held, repeal valid. *Kimball-Tyler Co.* v. *City of Baltimore*, 133 A.2d 433 (Md., June 24, 1957)

Tort Liability—City Dam—
Injury to Resort Denied

In action by owner of resort located on river 45 miles downstream from dam constructed by city that allegedly caused outlet river to be turbid and muddy, held, recovery denied. *Blood* v. *City of New York*, 237 F.2d 855 (2d Cir., Oct. 25, 1956)

Truck Route Ordinance Upheld

In action by owners of quarry at edge of city to enjoin ordinance prohibiting operation of trucks having gross weight of more than three tons, held, ordinance valid though it had effect of increasing transportation charges. *McCammon* v. *City of Redwood City*, 308 P.2d 831 (Cal. App., Mar. 26, 1957)

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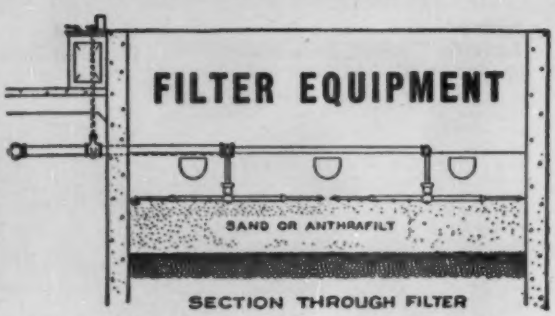

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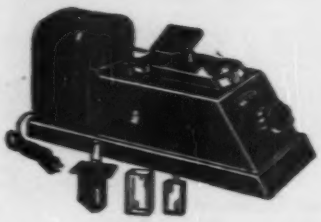

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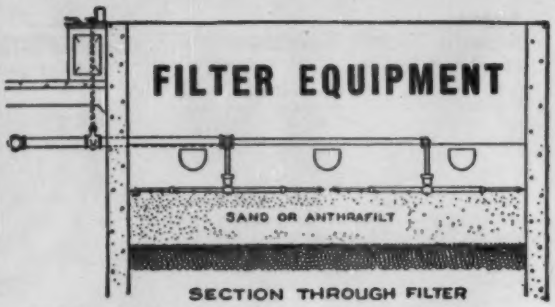

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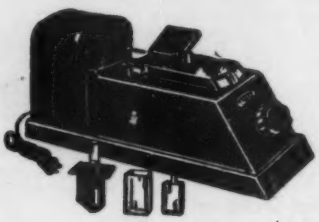

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Conventions — When & Where

Conventions listed this month for the first time are indicated by an asterisk (*)

January 7-9—New York, N. Y.
NORTHEASTERN WEED CONTROL CONFERENCE. Annual Meeting (Hotel New Yorker). Sec.-Treas., D. A. Schallock, Rutgers University, New Brunswick, N. J.

January 19-22—Dallas, Texas
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Convention (Memorial Auditorium). Exec. Vice Pres., Maj. Gen. Louis W. Prentiss, 600 World Center Bldg., Washington 6, D. C.

January 19-22—Miami Beach, Fla.
THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC. Annual Convention (American Hotel). Exec. Dir., James D. Marshall, 20th & E Sts., N.W., Washington 6, D. C.

January 22-23—New York, N. Y.
NEW YORK SEWAGE & INDUSTRIAL WASTES ASSOCIATION. Annual Convention (Park Sheraton Hotel). Exec. Sec., R. C. Sweeney, State Department of Health, 21 North Broadway, White Plains, N. Y.

January 26-28—Denver, Colo.
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Convention (Brown Palace Hotel). Sec.-Treas., Ward K. Parr, Box 619, Ann Arbor, Mich.

January 28-30—Berkeley, Calif.
CALIFORNIA STREET & HIGHWAY CONFERENCE. Annual Meeting (Durant & Shattuc Hotels). Exec. Sec., Bob Glenn, I.T.T.E., University of California, Berkeley, Calif.

February 4-6—French Lick, Ind.
AMERICAN WATER WORKS ASSOCIATION—INDIANA SECTION. Annual Meeting (French Lick-Sheraton Hotel). Sec.-Treas., Chester H. Canham, 1330 W. Michigan St., Indianapolis, Ind.

February 9-11—New York, N. Y.
ASSOCIATION OF TOWNS OF THE STATE OF NEW YORK. Annual Meeting (Commodore Hotel). Exec. Sec., Edward F. N. Uthe, 91 State St., Albany, N. Y.

February 24-27—Berkeley, Calif.
CALIFORNIA MUNICIPAL UTILITIES ASSOCIATION. Annual Convention (Claremont Hotel). Sec., F. V. Frey, 100 N. Garfield Ave., Pasadena, Calif.

***February 26—Washington, D. C.**
BUILDING INDUSTRY CONGRESS. Annual Congress (National Housing Center). Tech. Mgr., Robert F. Foeller, American Council to Improve Our Neighborhoods, Box 462, Radio City Station, New York 20, N. Y.

March 1-6—College Station, Texas
TEXAS WATER & SEWAGE WORKS ASSOCIATION. Annual Short School (Memorial Student Center). Sec., V. M. Ehlers, 2202 Indian Trail, Austin, Texas.

March 10-13—Atlantic City, N. J.
NEW JERSEY SEWAGE & INDUSTRIAL WASTES ASSOCIATION. Annual Convention (Traymore Hotel). Sec.-Treas., Michael S. Kachorsky, P. O. Box 68, Manville, N. J.

March 11-13—Chicago, Ill.
AMERICAN WATER WORKS ASSOCIATION—Illinois Section. Annual Meeting (Morrison Hotel). Exec. Sec., Dewey Johnson, 3440 Prudential Plaza, Chicago, Ill.

March 16-18—Little Rock, Ark.
ARKANSAS WATER AND SEWAGE CONFERENCE. Annual Meeting (Marion Hotel). Sec., C. W. Oxford, College of Engineering, Fayetteville, Ark.

March 17-19—Atlantic City, N. J.
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES. Annual Meeting (Traymore Hotel). Sec., Kenneth D. Rice, 1035 Parkway Ave., Trenton, N. J.

***March 18-20—Atlantic City, N. J.**
NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION. Annual Meeting (Hotel Haddon Hall). Sec., Bailey B. Pepper c/o Agricultural Experiment Station, New Brunswick, N. J.

March 18-20—Baton Rouge, La.
SHORT COURSE FOR WATER & SEWAGE PERSONNEL. Annual Meeting (Pleasant Hall, Louisiana State University). Sec.-Treas., George H. West, Box 15, Lake Charles, La.

March 25-29—Palm Beach, Fla.
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (Palm Beach Biltmore Hotel). Man. Dir., Howard F. Peckworth, 228 N. La Salle St., Chicago 1, Ill.

April 1-4—Washington, D. C.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Convention (Hotel Statler). Asst. Dir., John P. Kieth, 6042 Kimbark Ave., Chicago 37, Ill.

***April 2-3—Chapel Hill, N. C.**
SOUTHERN MUNICIPAL AND INDUSTRIAL WASTE CONFERENCE. Annual Meeting (University of North Carolina). For information address Dr. Daniel A. Okun, Department of Sanitary Engineering, School of Public Health, University of North Carolina, Chapel Hill, N. C.

April 5-8—Columbia, S. C.
AMERICAN WATER WORKS ASSOCIATION—Southeastern Section. Annual Meeting (Wade Hampton Hotel). Exec. Sec., N. M. DeJarnette, Georgia Dept. of Public Works, 209 State Office Bldg., Atlanta 3, Ga.

***April 11-13—Glendive, Mont.**
AMERICAN WATER WORKS ASSOCIATION—Montana Section jointly with Montana Sewage and Industrial Wastes Association. Annual Meeting (Jordan Hotel). Sec.-Treas., A. W. Clarkson, c/o State Board of Health, Helena, Mont.

***April 15-17—Lincoln, Nebr.**
AMERICAN WATER WORKS ASSOCIATION—Nebraska Section. Annual Meeting (Cornhusker Hotel). Sec., Rupert C. Ott Jr., Representative, Neptune Meter Co., 2818 21st St., Columbus, Nebr.

***April 16-18—Phoenix, Ariz.**
ARIZONA SEWAGE AND WATER WORKS ASSOCIATION. Annual Meeting (Hiway House). Exec. Sec., Stanford I. Roth, 717 W. Cambridge Avenue, Phoenix, Ariz.

***April 22-24—Hutchinson, Kans.**
AMERICAN WATER WORKS ASSOCIATION—Kansas Section jointly with Kansas Sewage and Industrial Wastes Association. Annual Meeting (Baker Hotel). Sec.-Treas., H. W. Bradley, 119 W. Cloud, Salina, Kans.

***April 22-25—Vancouver, B. C.**
AMERICAN WATER WORKS ASSOCIATION—Pacific Northwest Section. Annual Meeting (Vancouver Hotel). Sec.-Treas., Fred D. Jones, W. 218 Maxwell Ave., Spokane 11, Wash.

***April 29-May 2—Long Beach, Calif.**
CALIFORNIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (La-Fayette Hotel). Sec.-Treas., A. D. Leipzig, 12000 Vista Del Mar, Venice, Calif.

***May 5-7—West Lafayette, Ind.**
PURDUE INDUSTRIAL WASTE CONFERENCE. Annual Meeting (Purdue Memorial Bldg.). Exec. Sec., Don E. Bloodgood, Professor of Sanitary Engineering, Civil Engineering Bldg., Purdue Univ., Lafayette, Ind.

May 10-14—Minneapolis, Minn.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Convention (Hotel Leamington). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

May 13-15—Washington, D. C.
NATIONAL RIVERS AND HARBORS CONGRESS. Annual Convention (Mayflower Hotel). Exec. Vice Pres., William H. Webb, 1028 Connecticut Ave., N.W., Washington 6, D. C.

***May 14-16—Jamestown, N. Y.**
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Jamestown Hotel). Sec., Edwin J. Clark, Box 328, Wayne, Pa.

***May 24-26—Gatlinberg, Tenn.**
TENNESSEE MUNICIPAL LEAGUE. Annual Meeting (Riverside Hotel). Exec. Sec., Herbert J. Bingham, L & C Tower, 18th Floor, Nashville, Tenn.

***May 26-28—Seattle, Wash.**
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Olympic Hotel). Gen. Mgr., Alex Radin, 1025 Connecticut Ave., N.W., Washington 6, D. C.

***June 1-5—Atlantic City, N. J.**
NATIONAL FIRE PROTECTION ASSOCIATION—Annual Meeting (Dennis-Shelburne Hotel). Asst. Gen. Mgr., Charles S. Morgan, 60 Batterymarch St., Boston, Mass.

***June 18-23—West Berlin, Germany**
INTERNATIONAL UNION OF LOCAL AUTHORITIES. Congress on Social Services of Cities. For information, address Orin F. Nolting, International City Managers Association, 1313 E. 60th St., Chicago 37, Ill.

***June 21-26—Los Angeles, Calif.**
AIR POLLUTION CONTROL ASSOCIATION. Annual Convention (Statler Hotel). Exec. Sec., Harry M. Pier, 4400 Fifth Ave., Pittsburgh 13, Pa.

July 12-17—San Francisco, Calif.
AMERICAN WATER WORKS ASSOCIATION—Annual Convention (Civic Auditorium). Exec. Sec., Harry E. Jordon, American Water Works Association, 2 Park Avenue, New York, N. Y.

September 20-23—Seattle, Wash.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Convention (Olympic Hotel). Exec. Dir., Robert D. Bugher, 1313 E. 60th St., Chicago 37, Ill.

October 11-15—Dallas, Texas
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Convention (Memorial Auditorium). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave., N. W., Washington 16, D. C.

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Municipal and Civic Publications

Publications on these pages are available from the addresses indicated in each listing and are usually free unless a price is given.

Latest Information on Refuse Collection

REFUSE COLLECTION PRACTICE—*Prepared by Committee on Refuse Collection, American Public Works Association,* 1313 *East 60th St., Chicago* 37, *Ill. Second Edition.* 1958. 562 *pp.* $8.

This study on municipal refuse collection practice comprises data submitted by cities of all sizes located in practically every state. Subjects include the refuse collection problem; refuse material; collection cost factors; collection methods; equipment and systems; financing; organization; and related subjects. All data reported is based on experience in 1955 or later.

The book also includes typical collection ordinances and collection practices in 89 cities plus a section on analysis and planning of refuse collection systems.

Montana Government

THE GOVERNMENT AND ADMINISTRATION OF MONTANA—*Roland R. Renne. Thomas Y. Crowell Company,* 432 *Fourth Ave., New York* 16, *N. Y.* 1958. 508 *pp. Cloth.* $7.75

A recent addition to a series of books devoted to the American Commonwealth, this volume on Montana is written by the president of Montana State College. The purpose of this series is to provide detailed background information on each state—including its physical features, and the operaton and administration of the various units of state, county and municipal governments. Separate treatment is given to each function with which these units are concerned, i.e., the revenue system, planning and development, transportation, the legislature, public welfare.

Roadside Development

ROADSIDE DEVELOPMENT, 1958—*Highway Research Board, National Academy of Sciences—National Research Council,* 2101 *Constitution Ave., Washington* 25, *D. C.* 1958. *Publication* 613. 72 *pp. Paperbound.* $2.

In this report of the Committee on Roadside Development to the 1958 annual meeting of the Highway Research Board, studies are presented on stabilized turf shoulders, with the Natchez Trace Parkway as an example; the use of urea-formaldehyde fertilizers and lime on highway slopes; spraying to cut down roadside maintenance costs; design and construction of highway medians; roadside development of the interstate system.

Emergency Continuity of Government

CONTINUITY OF STATE AND LOCAL GOVERNMENT—*Office of Civil and Defense Mobilization, Battle Creek, Mich.* 1958. *Leaflet No. L-20.* 8 *pp.*

A small bulletin that provides a 4-point course of action in event that local or state governments should suffer either a disaster or nuclear attack: (1) they should establish automatic lines of succession for their key officials, both elected and appointed; (2) they should make sure that their essential records will be preserved; (3) they should have some emergency location to which they can withdraw their government; and (4) they should have a master plan which would utilize all personnel, facilities and equipment in such an emergency.

Sanitation Textbook

MUNICIPAL AND RURAL SANITATION—*By Victor M. Ehlers, Ernest W. Steel. 5th Edition. McGraw Hill Book Company, Inc.,* 330 *West 42nd St., New York* 36, *N. Y.* 1958. 596 *pp. Cloth.* $9.

This book represents the fifth edition of a basic reference work on municipal and rural sanitation. The first edition appeared in 1927. The present edition attempts to bring health officers, engineers, municipal administrators and sanitarians up to date on the latest practices and technological advances in the sanitation field. New chapters have been added on institutional sanitation and radiological sanitation. In addition there has been a thorough revision of the material dealing with communicable diseases, excreta disposal with water carriage, water refuse sanitation, and insect vector and rodent control.

The book discusses communicable diseases; sewerage in all forms; water supply; plumbing; swimming pools; refuse sanitation; insect and rodent control; milk and food sanitation; air conditioning; light; housing; and, other topics.

Water Pollution Control

THE WATER POLLUTION CONTROL PROGRAM OF THE U. S. PUBLIC HEALTH SERVICE, 1957-1958—U. S. Department of Health, Education and Welfare, Public Health Service. Superintendent of Documents. U. S. Government Printing Office, Washington 25, D. C. 1958. 27 *pp. Paperbound.* 25c.

The Public Health Service presents a popular pamphlet describing its activities under the federal Water Pollution Control Act of 1956. The act authorized the development by the Public Health Service of a water pollution control program.

This pamphlet discusses the history and background of the problem of water pollution; its legislative history; the role of local and state governments in combatting pollution; and how the Public Health Service can aid states with their pollution control programs.

By thorough water pollution control, the Public Health Service hopes to get communities to use the same water over and over again, thus conserving the nation's water supply.

Planning for Metropolitan Development

METROPOLITAN DEVELOPMENT GUIDE—*for the Missouri-Illinois St. Louis Area. A symposium. W. Phillip Shatts, Editor and Frederick T. Aschman, Consulting Editor. Metropolitan Plan Association, Inc.,* 915 *Olive St., St. Louis* 1, *Mo.* 1958. *Cloth.* 163 *pp.*

This publication presents a symposium of 25 specialists on the major planning problems facing metropolitan areas—with the St. Louis metropolitan area of six counties, the two St. Louis cities, and 200 surrounding communities serving as an example.

The Guide points up some of the more critical needs of the area; suggests means by which official agencies can solve them; and, seeks to develop public opinion in support of coordinated development programs.

Among the issues discussed by the symposium are planned metropolitan development; planning agencies; governmental and citizens' cooperation; a planning agencies council; and proposals for a plan of action.

Updated Sewerage Textbook

SEWERAGE AND SEWAGE TREATMENT—*By Harold E. Babbitt and E. Robert Baumann. Eighth Edition. John Wiley & Sons, Inc.,* 440 *Fourth Ave., New York* 16, *N. Y.* 1958. 790 *pp. Cloth.* $10.75.

A tried and tested text used in the field for the past 36 years, this book has been up-dated to include the latest ideas, designs and methods of sewerage construction and sewage treatment. New emphasis is placed on oxidation ponds and sludge treatment and disposal.

The book covers a sewage project from inception, through public relations, to design, construction, operation and maintenance. It gives detailed information applicable to immediate problems of design and operation.

Study of a Depressed Expressway

THE EFFECTS OF A DEPRESSED EXPRESSWAY—A DETROIT CASE STUDY—*By Richard De La Barre Duke. The Appraisal Journal, October* 1958, *pp.* 487-507. *American Institute of Real Estate Appraisers of the National Association of Real Estate Boards,* 36 *South Wabash Ave., Chicago* 3, *Ill.* $1.50. (*Reprints* 50c).

The author presents a case study of a new kind of roadway—the depressed expressway—using Detroit's Edsel B. Ford Expressway as an example. The purpose of this study was to determine the degree and extent of change induced by the expressway, and to develop a technique that could be used in conducting similar studies.

The results of Mr. Duke's study show that there was a considerable variation in the degree of change induced by the expressway, depending on whether the property affected was residential, commercial or industrial.

Recent Zoning and Planning Decisions

REPORT OF COMMITTEE ON ZONING AND PLANNING—*By Fred G. Stickel III. National Institute of Municipal Law Officers,* 730 *Jackson Place, N.W., Washington* 6, *D. C.* 1958. *Pamphlet.*

The Zoning and Planning Committee of the National Institute of Municipal Law Officers reports on recent writings and decisions in the fields of planning and zoning. The report discusses new practices and developments in various aspects of both fields. Specific cases are cited.

County Government

COUNTY GOVERNMENTS: WHAT THEY ARE, WHAT THEY DO, AND HOW THEY ARE ORGANIZED TO GET THEIR WORK DONE—*Facts for Iowa Legislators, Bulletin No.* 13. *Iowa Legislative Research Bureau, State Office Bldg., Des Moines, Iowa. June* 1958. 19 *pp. Mimeo.*

The bureau, organized to present facts to the Iowa legislators, takes a long, hard look at Iowa county government, and finds it a disorganized, mixed-up form of government. It is burdened with many elected officials, who are not responsible to anyone except the voters, have no incentive for interdepartmental coordination, and are without an effective administrative head.

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Canadian Slum Clearance

REGENT PARK—*By Albert Rose. University of Toronto Press, Toronto 5, Ont., Canada.* 1958. 242 *pp. Cloth.* $5.50.

This thoughtfully prepared text tries to analyze objectively the emotionally charged subject of Canada's first extensive experiment in slum clearance and urban redevelopment. It presents the many thorny problems that arise when such a project is proposed within the framework of a democratic society. It demonstrates, often colorfully, the questions and objections of both those on the tenant level and those who are prosperous enough so that they will never be tenants and who look on such a project as a further load on their tax bill. It analyzes the effect on the families who enter the project, discounts in creditable manner many excessive claims of improvement in juvenile delinquency and other social matters. Its last two chapters, "Regent Park as Public Housing," and "What We Have Learned," are particularly informative.

Milwaukee Year Book

MILWAUKEE: HOME OF GREAT INDUSTRIES—*By Gerald P. Caffrey, Municipal Library, 814 West Wisconsin Ave., Milwaukee, Wis.* 1958. 112 *pp. Paperbound.*

Milwaukee has dedicated this 1958 directory and report of its operations in 1957 to the industries which help make it famous. It is designed not only for the residents of Milwaukee, but also for officials and business leaders elsewhere interested in information on Milwaukee.

The book is divided into seven major chapters covering general administration, finance, protection, general welfare, education and culture, public works and public utilities. There is a 1958 directory of officials, statistics, an index and a short list of basic facts about the city. A feature of the book is a description of the work and activities of Mayor Frank P. Zeidler, the Common Council and the courts.

Flood Control Regulations

REGULATING FLOOD-PLAIN DEVELOPMENT—*Francis C. Murphy, University of Chicago, Department of Geography. Research Paper No. 56. University of Chicago Press, Chicago 37, Ill.* 1958. 214 *pp. Paperbound.*

This survey of urban areas affected by fresh-water flooding from streams, rivers and lakes, was undertaken with the help of a grant from the Secretary of the Army. The author seeks to determine what should be done to cut down the hundreds of millions of dollars lost every year to floods. He studies the problems of flood-plain loss education; current practices in flood-plain development regulations; and, presents a program of integrated action to reduce flood damage.

Renewal Information

A MEMORANDUM ON URBAN RENEWAL—*Citizens Research Council of Michigan. Memorandum No. 193. 810 Farwell Bldg., Detroit 26, Mich.* 1958. 17 *pp. Paperbound.*

This excellently prepared memorandum will prove helpful to city officials interested in obtaining background information and a reference guide to urban renewal. The memorandum defines terms and purposes of urban renewal; and guides municipal officials through the maze of red tape surrounding the authorization of federal funds for an urban renewal area.

A Guide to Negotiations with Municipal Employee Organizations

NEGOTIATIONS WITH MUNICIPAL EMPLOYEE ORGANIZATIONS — *Management Information Service, Report No. 176, September* 1958. *International City Managers' Association, 1313 East 60th St., Chicago 37, Ill.* 22 *pp. Paper. Available to subscribers only.*

Negotiations with municipal employee organizations is a rapidly changing, complex and controversial subject. From 1938 to 1955 the percentage of cities 10,000 and over in population having municipal employee organizations rose from 32 to 70. Approximately 150 of the cities with this population have officially recognized unions of municipal employees or other official groups of city employees. In addition, the American Federation of State, County and Municipal Employees (AFL-CIO) has contracts with another 179 cities.

This report describes current practices in management-employee relations among municipalities and presents some suggested guides to city officials for negotiations with municipal employee organizations.

Flood-Plain Occupancy

CHANGES IN URBAN OCCUPANCY OF FLOOD PLAINS IN THE UNITED STATES—*By Gilbert F. White, Wesley C. Calef, James W. Hudson, Harold M. Mayer, John R. Sheaffer, Donald J. Volk. University of Chicago, Department of Georgraphy, Research Paper No. 57. University of Chicago Press, Chicago 37, Ill.* 1958. 235 *pp. Paperbound.*

This exploratory study of changes in urban occupance of flood plains since the enactment of the federal Flood Control Act of 1936 is made possible by a grant from Resources for the Future, Inc. Since this act was passed, the problem of flood losses has changed considerably in character. Today, urban areas account for a high proportion of flood losses.

The study points up the fact that while federal flood control activities have greatly reduced the flood loss hazard in certain areas, in other areas this hazard has increased. More and more persons are to be found encroaching upon flood-hazard areas —due in part to actions, or the lack of actions by state and local authorities.

Case Study of a Flood Disaster

CASE STUDY OF A FLOOD-STRICKEN CITY—*By Seymour S. Weisman. Graduate School of Public Administration and Social Service, New York University, 4 Washington Square North, New York 3, N. Y.* 1958. 149 *pp. Paperbound.* $2.75.

On October 15 and 16, 1955 disaster in the form of a hurricane with torrential rains and floods struck Norwalk, Conn. The city was caught unprepared. What happened to Norwalk as a result of the floods is the subject of this doctoral dissertation.

The author, himself a resident of Norwalk and a flood victim, describes the extent of the flood damage, the work of various government and civic agencies in giving relief and in aiding in the clean-up of the flood damage, and the efforts of the city subsequently toward rehabilitation and redevelopment. He concludes with an evaluation of the flood experience and presents recommendations for future flood prevention, disaster relief and flood rehabilitation.

Voting Behavior

MICHIGAN VOTES: ELECTION STATISTICS 1928-1956—*By John P. White. Papers in Public Administration No. 24. Bureau of Government, Institute of Public Administration, University of Michigan, Ann Arbor, Mich.* 1958. 128 *pp. Paperbound.* $2.50.

Michigan Votes provides an interesting study of the political behavior of the electorate in one state. It supplements the information and statistics contained in Richard Scammon's *America Votes.* With these statistics, officials can gain an insight into relative party strengths, political trends, and be able to predict future election trends.

Issuing Municipal Bonds

A GUIDE TO PENNSYLVANIA'S MUNICIPAL BORROWING ACT—*By Sydney Wise, Bureau of Municipal Affairs, Department of Internal Affairs, Commonwealth of Pennsylvania, Harrisburg, Pa.* 1958. 64 *pp. Paperbound.*

The Bureau of Municipal Affairs of Pennsylvania's Department of Internal Affairs has prepared, in another one of its fine publications, a guide for municipalities in that state, planning to float bond issues.

Pennsylvania's Municipal Borrowing Act spells out the proper procedure for municipalities to follow in borrowing money; explains the types of bonds that can be borrowed, and the procedures to go through before selling the bonds. This guide in addition provides questions and answers on problems that arise frequently in financing bond issues. Also included are sample forms of the proper ordinances and notices.

Other Reports Received

Administration & Government

GENERAL—1957 Census of Governments: Local Government Employment in Standard Metropolitan Areas. Vol. II, No. 3. U. S. Department of Commerce, Bureau of the Census. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 1958. 50 cents.

GENERAL—The Use of the Port Authority in the United States: With Special Reference to the San Francisco Bay Area. Bureau of Public Administration, University of California, Berkeley. 1958. $2.

KANSAS—Voter Participation in City Elections of Cities with Populations between 5,000 and 50,000. Governmental Research Center, University of Kansas, Lawrence. 1958.

Annual Reports

1957-1958 Annual Reports for Fillmore, Calif.; Schenectady, N. Y.; West Hartford, Conn. Available from City Hall.

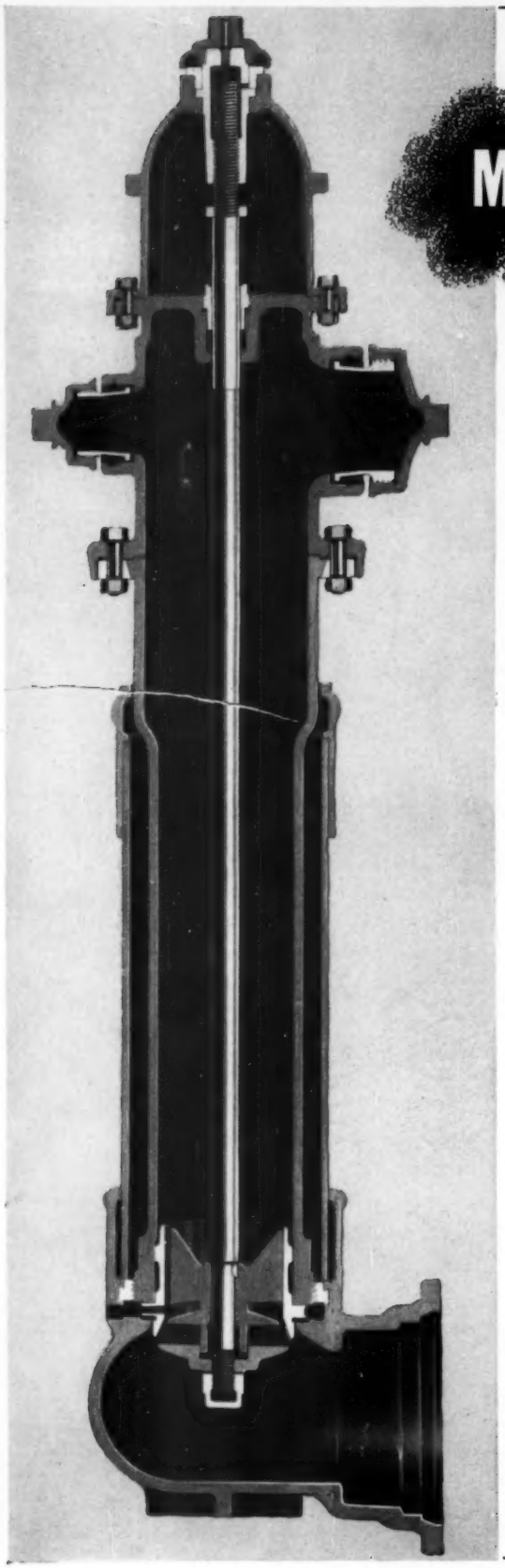
Finance & Taxation

GENERAL—The Accounting Function and System, and Auditing and Financial Reporting. Institute of Local Government, University of Pittsburgh, Pittsburgh, Pa. 1958.

GENERAL—Facts and Figures on Government Finance. 10th Edition. Tax Foundation, Inc., 30 Rockefeller Plaza, New York 20, N. Y. 1958. $3.50.

KANSAS—Municipal Finance in Kansas 1953-1956. Governmental Research Center, University of Kansas, Lawrence. 1958.

(Continued on page 177)



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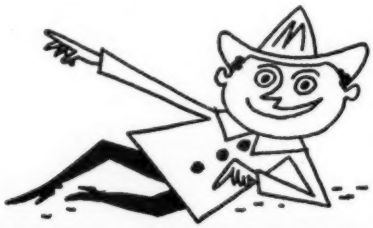

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Parks & Recreation

LOS ANGELES, CALIF.—Annual Report of County Department of Parks and Recreation, 834 W. Olympic Blvd., Los Angeles 15. 1958.

NORWALK, CONN.—Revised Plan of Park and Recreation. City Planning Commission, Veterans Memorial Park. 1958.

Planning, Zoning & Housing

GENERAL—A Legal and Economic Basis for City Planning. IN: *Columbia Law Review*, May 1958. Columbia University, New York 27, N. Y. $1.50.

NASHVILLE, TENN.—The Planning Program in Metropolitan Government. Planning Commission, City Office Bldg. 1958.

NEW YORK STATE—Local Planning and Zoning: A Manual of Powers and Procedures. State Department of Commerce, Albany 7. 1958.

TRENTON, N. J.—Central Business District Economic Study; Circulation Plan; Central District Plan; First Annual Report. Greater Trenton Council, 224 West State St. 1958.

Public Works

HONOLULU, HAWAII—1957 Annual Report of City and County Department of Public Works. Office of Chief Engineer, Department of Public Works, Honolulu 13. 1958.

NEWTON, MASS.—Annual Report of Department of Public Works. Office of the Director, City Hall. 1958.

Refuse Collection & Disposal

GENERAL—Refuse Collection and Disposal: An Annotated Bibliography; 1954-55 and 1956-57 editions. Bureau of State Services, U. S. Public Health Service. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 35c.

Sewerage

GARY, IND.—1957 Annual Report of Sewage Treatment Works. Office of Superintendent, Gary Sanitary District. 1958.

Streets

NEW YORK, N. Y.—New York City Arterial Program. Office of City Construction Coordinator, Randall's Island, New York 35. 1958.

Traffic

GENERAL—Highway Transportation Legislation in 1958. National Highway Users' Conference, National Press Bldg., Washington 4, D. C. 1958.

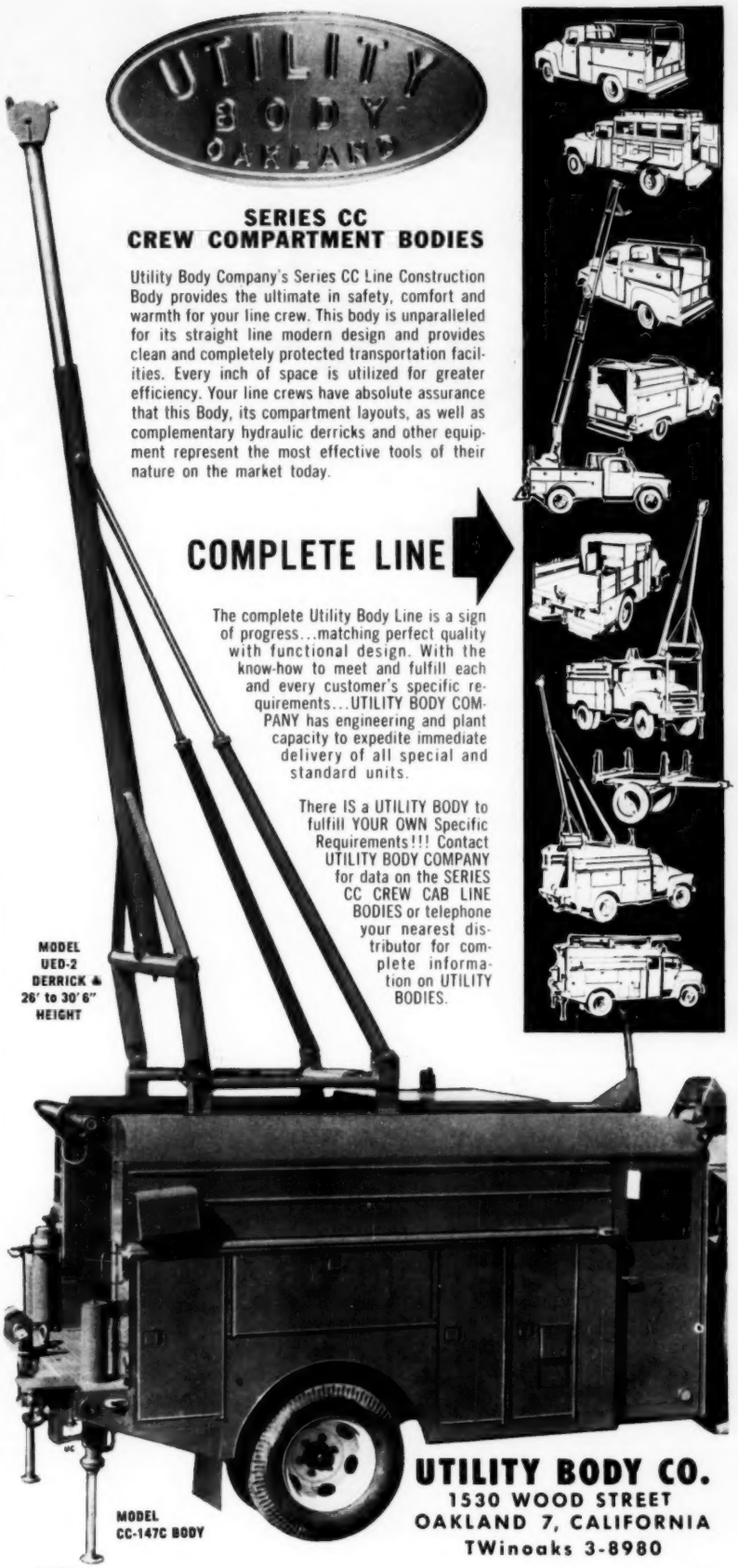
GENERAL—The Right Word: Glossary of Highway Terms. Revised Edition. National Highway Users' Conference, Washington 4, D. C. 1958.

Water

FLORIDA—Approaches to Water Resource Development in Central and Southern Florida, 1845-1947. Public Administration Clearing Service, University of Florida, Gainesville. 1958. $1.

LONG BEACH, CALIF.—1957-1958 Annual Report, City Water Department. Office of General Manager and Chief Engineer.

PASADENA, CALIF.—Annual Report of City Water Department. Office of Chief Engineer and General Manager. 1958.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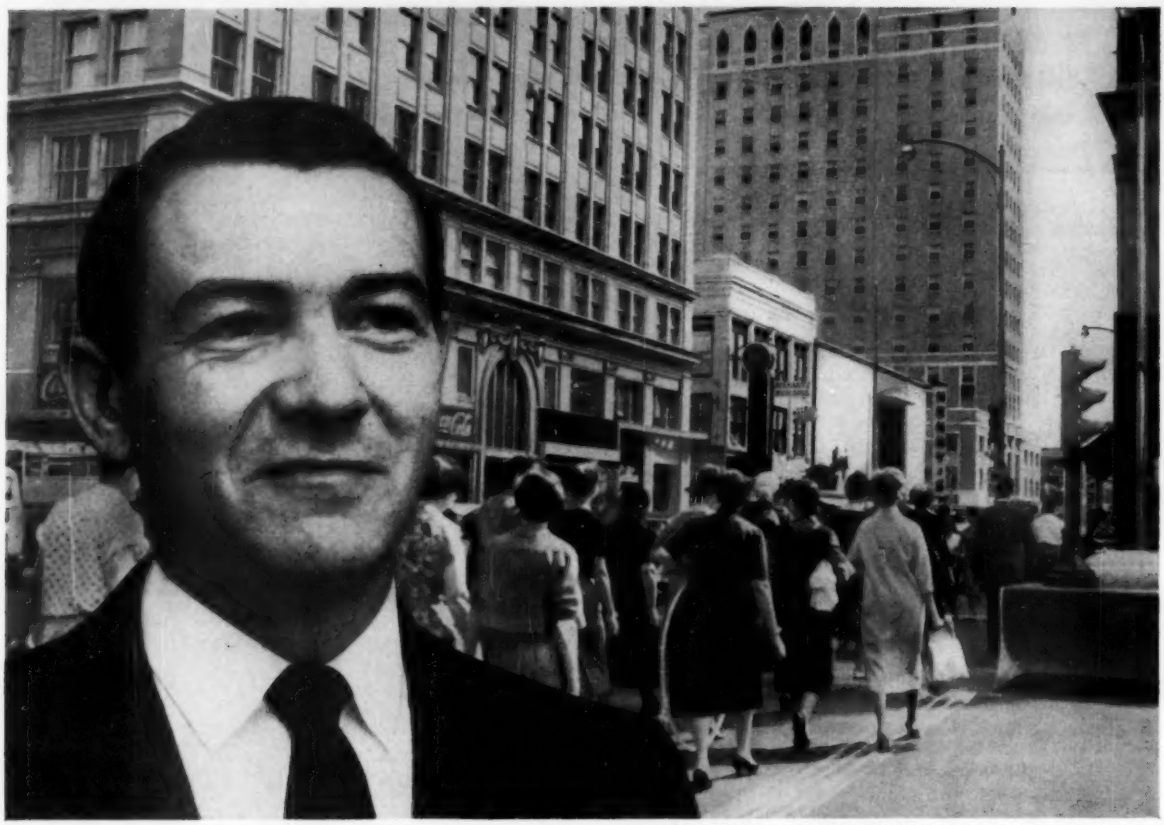
Enlarged Fisher plant that makes pipe and leak detectors.

Key to community prosperity—*a modern water system!*



Busy shoppers on Wichita's Broadway and Douglas Avenue

From WICHITA, KANSAS—Mayor James L. Gardner tells how good water contributes to business activity.

"Every year—we actively go after new business . . . seek new firms to locate in Wichita to create job and business opportunities for our citizens. These new firms need water—and never fail to ask about our water system . . . which is one of the most efficient systems anywhere in the world. Part of its efficiency is made possible by Johns-Manville Transite Pipe which we have been using for many years."

Your prosperity, welfare and safety depend on good water . . . and plenty of it. Now's the time to support your community water upgrading program and water department officials.

How Transite Pipe helps keep water costs low . . . employment high . . . business good!

Visit Wichita and you see an active city. A giant farm market . . . a world leader in the oil and meat packing industries . . . an area unsurpassed in aircraft manufacturing.

Throughout the city, homeowners and businessmen give many reasons for this prosperity. One important reason is the city's water system! One of the nation's most modern, it supplies Wichita with 30 million gallons of fresh, crystal-clear water every day.

Like so many leading communities, Wichita has been served for many years by Johns-Manville Transite Water Pipe.

Made of asbestos-cement, Transite cannot rust . . . preserves water purity and clarity from treatment plant to home and industry. Transite also saves tax dollars for other uses. It is installed quickly, economically. Its smooth interior keeps pumping costs low. And it is noted for its unusually long life. The result is greater assurance of pure water . . . in full volume . . . at minimum cost to homeowner and business firm.

For information on how Transite Water Pipe (and Transite Sewer Pipe, too) can serve your city, write Johns-Manville, Dept. EN, Box 14, New York 16, N. Y.

JOHNS-MANVILLE

100 YEARS OF QUALITY PRODUCTS . . . 1858—1958

JOHNS-MANVILLE JM PRODUCTS

Purchasing

Lock Joint Pipe Appointments

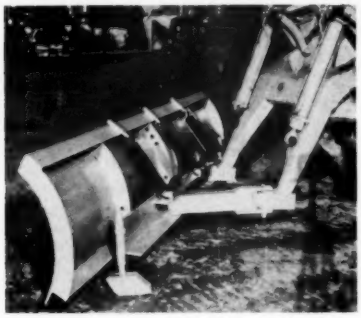
Philip R. Hirsh, former executive vice president of the Lock Joint Pipe Company, who was in charge of sales, has been appointed chairman of the Board of Directors.

C. Mack Albertson, former district sales manager out of the Turner, Kans., Plant, has been called into the home office and has been appointed sales manager for pressure pipe sales. His former job as sales manager of the Western District has been taken over by Charles A. Gallagher.

Stephen L. Bartholomew, former sales representative from the home office, has been named Eastern District sales manager for pressure pipe. E. A. Preston remains on as manager of foreign sales

In the Engineering Department, Robert E. Bald, former assistant chief engineer, has been named chief engineer for the company.

Snow Plow Blade Has Unusual Adaptability



A simple, but ingenious system of pins and holes in the longitudinal back brace makes it possible for this reversible angling snow plow blade to be mounted quickly on any type of wheel and crawler tractor.

The blade is 8 feet wide and 24 inches high; it has a ½-inch x 6-inch high carbon cutting edge. It can be angled to either side up to 42 degrees. Two oscillating swivel runners maintain proper position of blade. Shock and strain on the main frame are reduced by three heavy-duty torsion springs, which deflect the blade on contact with immovable objects such as manhole covers.

For additional information, write GENERAL ENGINES CO., INC., ROUTE No. 130, THOROFARE, N. J., or you may use the Post Card on the insert following Page 50. Circle No. 850.

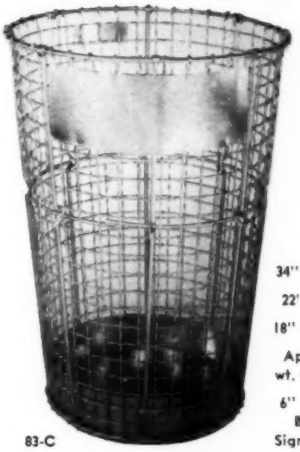
Industrial Sweeper

A new industrial or plant floor power sweeper incorporates a floating main broom which assures a clean swath, allows the broom to sweep out depressions, and automatically compensates for broom wear. Spring loaded counter-balancing unit on the side broom permits adjustment to meet

Fast Clean Up
M-B SWEEPERS
Clean dirt, leaves, debris, snow — most everything — from streets, sidewalks, playgrounds, etc. Economical M-B Sweepers fit all popular tractors, many tractor loaders. Available with two-way hydraulic drive and one-way mechanical drive. Your tractor dealer has full details, or write to the M-B Corporation, New Holstein, Wisconsin.
Sweepers to fit every need.
TWO-WAY HYDRAULIC | LOADER MOUNTED | TRACTOR MOUNTED
MECHANICAL TRACTOR MOUNTED
PULL-TYPE SWEEPERS
M-B CORPORATION
PACKER BODIES
SWEEPERS
LINE MARKERS

LET THE PUBLIC *keep your* STREETS and PARKS CLEAN . . .

USE NORWICH STREET AND PARK BASKETS



34" Deep
22" Top
18" Bottom
Approx. wt. 43 lbs.
6" x 16" Blank Sign Plate.

83-C

HOT DIP GALVANIZED AFTER FABRICATION

Shipped from stock in any quantity

Call or Write

NORWICH WIRE WORKS, INC.
159 STATE STREET, NORWICH, N. Y.

FERRO SIGNS

. . . are visible day or night. Made of permanent porcelain enameling, fused on finest steel. Fully embossed. On any street, road, or highway *FERRO is the sign of good government.*

FERRO ENAMELING COMPANY

Member: Porcelain Enamel Institute

1100 FIFTY-SEVENTH AVENUE
OAKLAND 21, CALIFORNIA

to build confidence with taxpayers . . .

NEW SPEED, PINPOINT ACCURACY
FOR YOUR WATER BILLING SYSTEM

"Much faster and more accurate." "Saves almost 1,000 hours per year in personnel alone."

Multiply such comments by the thousands and you'll get an idea of what mechanization of their water billing systems means to municipalities installing Burroughs Sensimatic Accounting Machines for the job.

So flexible are the machine's applications that it can handle water billing and sewage taxes simultaneously. Monthly, quarterly or cycle billing—the Sensimatic speeds them all with unparalleled accuracy. Its exclusive sensing panel takes over the entire operation: the original bill, original ledger and running journal are all printed automatically. Such streamlining makes fast friends with water users. They get their bills on time every time, can take advantage of their discounts.

See how the Sensimatic can invest your billing—all your fiscal record keeping, in fact—with a new efficiency and economy that will repay your investment many times over. Call our nearby branch office, or write Burroughs Corporation, Burroughs Division, Detroit 32, Michigan.

Burroughs and Sensimatic—TM's

Burroughs Corporation

"NEW DIMENSIONS / in electronics and data processing systems"

Task Master "42"—Patch & Kase's industrial power sweeper.

all types of sweeping conditions.

All objects, from leaves, nuts, bolts, to coke bottles and 2 x 4's, readily enter the main broom chamber through a hinged upper hopper lip. After passage, hopper lip returns to normal position and the objects are swept into the hopper. For additional information, write PATCH & KASE CORP., 159 S. IRWINDALE AVE., AZUSA, CALIF., or you may use the Post Card on the insert following page 50. Circle No. 818.

T. T. Quigley Elected Vice President of Wallace & Tiernan

The Board of Directors of Wallace & Tiernan Incorporated, Belleville, N. J., elected Thomas T. Quigley Vice-President —Equipment Divisions at its December 4th meeting. Mr. Quigley will assume his new duties on January 1, 1959. He will be responsible for all operations of the company's equipment divisions.

Wallace & Tiernan Equipment Divisions manufacture chlorination and dry feeding equipment, precision pressure sensitive instruments and electrical aids to navigation.

Thomas T. Quigley

Mr. Quigley has been associated with Wallace & Tiernan since 1940.

Emhart Reduces Prices on Aerial Lifts

A general price reduction and new lease plans for all hydraulic aerial lift models are announced by Emhart Manufacturing Co., Skyworker Division.

Model 1030, used primarily for street light maintenance, is now priced at $4,950; Model 1035A, designed for line clearance, tree trimming and electrical line work, is $5,333. Model 1025, equipped for telephone line work, is now selling for $5,480. Model 4033, which is available with dual work platforms, now sells for $6,290.

All Skyworker models are available on a one, two or three year lease basis. Lease costs vary, depending upon the model, mounting vehicle and accessory equipment desired.

For complete information write EM-

Rate Yourself as a

METERologist...

CHECK HERE

☐ Do you believe in setting water meters so that they are most available for quick and easy reading?

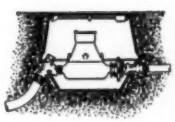
☐ Do you provide installations which put meters in the proper position and protect them from dirt and damage?

☐ Are your meters connected into the line so that changing can be quick and trouble-free?

☐ Do you test meters periodically and maintain them for maximum accuracy?

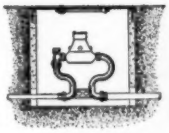
If you have checked all four you probably use Ford equipment. Don't be discouraged if your grade is off a little; the easy first step toward improving it is to send for a FORD CATALOG. IT'S FREE.

These Ford Products Make it Easy for you to be a METERologist



YOKE BOX

For shallow services the Yokebox provides protection to keep meter clean, easy to read and easy to change.

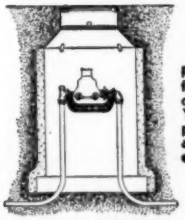


COPPERSETTER

A complete meter mounting that brings the meter up for easy reading and changing. Holds service line permanently connected.

COPPERHORN

Ideal setting for most basements with vertical service lines. Often saves more than its cost in pipe fittings.



DOUBLE LID SETTING

Provides maximum frost protection in cold climates. The Yoke holds risers permanently braced and connected for easy meter changing.

FORD

FOR BETTER WATER SERVICES

THE FORD METER BOX COMPANY, INC. Wabash, Indiana

MULTI JET The new

packaged LP-Gas Mixer

Low and High Pressure

for standby—peak shaving 100% service

This complete cabinet unit makes it practical for utilities of any size, regardless of pressure requirements, to insure their gas supply. Ready to cut in at a moment's notice, manually or automatically, the **Draketown** MULTI JET provides an interchangeable fuel for natural gas. Guarantees critical control and uniformity of Btu sendout and more flexible low-load operation. Requires very little maintenance.

An inquiry will show how simply you can get "gas insurance" at your plant. There is no obligation.

PATENTS

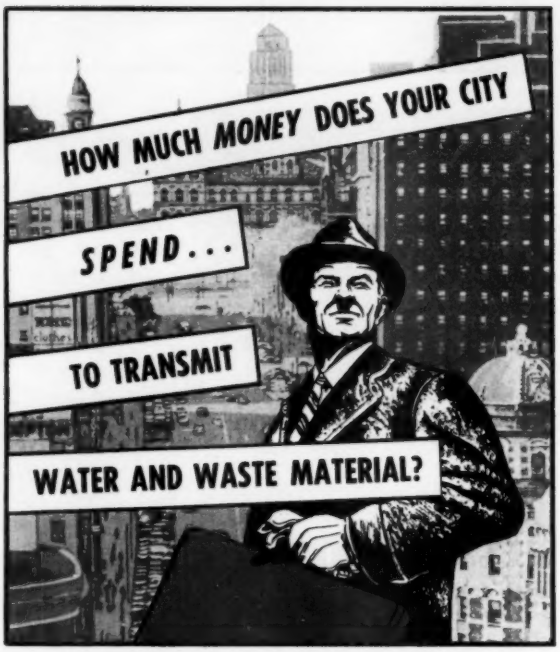
UNITED STATES 2738261 CANADA 528664
GREAT BRITAIN B-706155 FRANCE 1081248
HOLLAND 123533

DRAKE & TOWNSEND

INCORPORATED

11 West 42nd St., New York 36, N. Y.

The foremost producer of propane plants throughout the world



AND HOW MUCH OF THIS AMOUNT IS IN MAINTENANCE AND REPLACEMENT COSTS?

SOUTHWESTERN PLASTIC PIPE can *substantially* reduce both *installation* and *maintenance* costs in the following municipal systems:

- Fresh water lines
- Sewage disposal plants
- Sewage drain lines (Chem-weld Drain Pipe)
- Park water systems
- Golf course sprinkler systems
- Swimming pool supply and drain lines

SOUTHWESTERN PLASTIC PIPE has several features which especially qualify it to do these jobs for your city. SOUTHWESTERN PIPE is lightweight, easy to store, handle and transport. It is quick and simple to install, requiring no special tools, and only a minimum of labor.

Once installed, because it is chemically inert and has a smooth inner surface, SOUTHWESTERN PLASTIC PIPE gives years of maintenance-free service.

SOUTHWESTERN PLASTIC PIPE is available in a *complete* line of sizes and types (2" to 12") to specifically meet most municipal requirements.

For complete information, mail the coupon, wire or call—

Southwestern PLASTIC PIPE CO.

P. O. Box 117 • Mineral Wells, Texas Phone FA 5-3344

Send engineering specifications on plastic pipe for:
☐ *WATER Systems* ☐ *Sewage Drain Lines*
☐ *Underground Sprinkler Systems*

NAME _____
POSITION _____
ADDRESS _____
CITY _____ ZONE ____ STATE _____

SWP-28

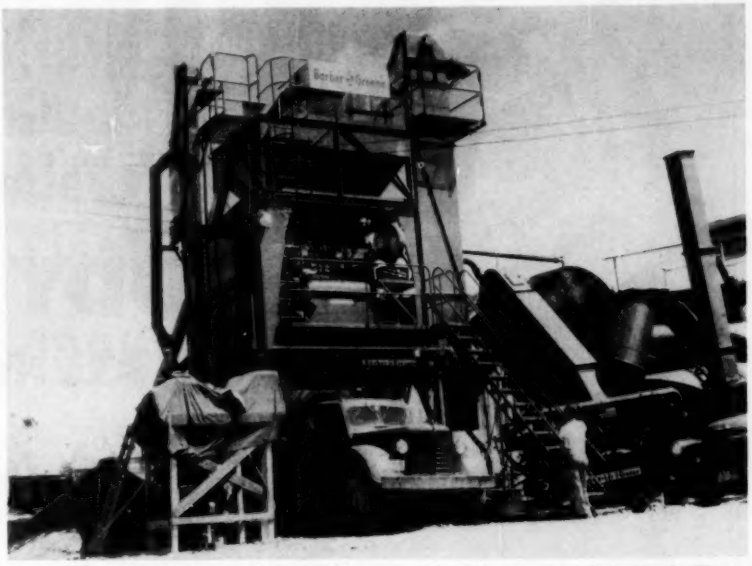
HART MFG. CO., SKYWORKER DIVISION, 760 WINDSOR ST., HARTFORD, CONN., or you may use the Post Card on the insert following Page 50. Circle No. 840.

Advanced Asphalt Plant

Barber-Greene Co. has just announced the addition of two new asphalt Batch Plants to their line: the Model 890, with 1000 pounds rated capacity, and the Model 891, with 1,500 pounds rated capacity.

Both plants are well suited to municipalities needing extensive amounts of hot-mix asphalt for general street maintenance. Both plants are basic four-bin units, designed for the production of all types of bituminous mixes, and both incorporate many features of the company's larger BatchOmatic plants.

Among the new features is the Batchometer asphalt measuring system, which combines accuracy with pushbutton operation. Equipped with a separate meter and pump, the system may be preset to deliver any amount of asphalt required for a batch. Once set, there is no need to reset for succeeding batches of the same specification. The meters, asphalt strainer and spray valve are all submerged in a tank of hot asphalt, essential for unvarying accuracy. After presetting, the operator actuates the system and an electric-hydraulic valve allows asphalt to be pumped into the pugmill, through jacketed spray bars. When the present amount has been delivered, the valve automatically closes and the asphalt continues to circulate through the closed system.



A field installation of one of Barber-Greene's 1000-1500 pound asphalt Batch Plants.

Both the Model 890 and 891 feature

DANLINE*
Sweeping Brushes
Offer the Lowest Cost Per inch of Wear!

3000 sweeping miles or 500 sweeping hours . . . take your choice. Both figures are good, and you can get *both* with a Danline wire sweeping brush . . . Also, less than 10 cents per sweeping mile can be your cost! . . . In addition, there are extra savings in easier maintenance, less brush replacement and minimum storage space . . . Brush assemblies come in a compact package and require less than twenty minutes to put together . . . Danline brushes can remove heavy loads — up to 10" of sand in a single pass! . . . This is achieved through the use of round, small diameter brush wire which provides more sweeping ends per pound of fill material and a more uniform brush . . . We ask you to test the Danline — get the cleanest sweep you've ever had.

*U.S. Pat. 2864112

Newark Brush Company
59-3
260 MICHIGAN AVENUE
KENILWORTH, NEW JERSEY

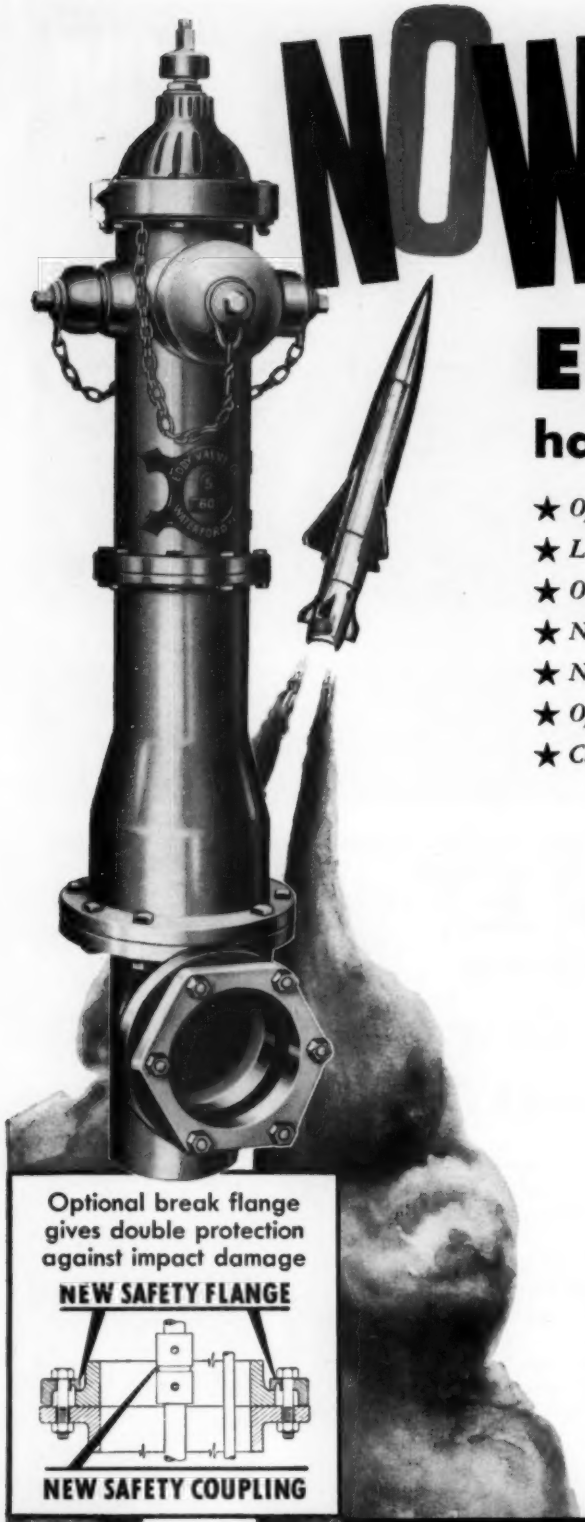
NOW!

improved... streamlined... modernized...the

EDDY Hydrant

has ALL these features...

★ *Optional ground line break flange*
★ *Large diameter barrel for increased flow*
★ *O-ring or standard packing*
★ *New self-sealing rubber ring main valve packing*
★ *No lubrication required for fast, easy opening*
★ *Opens with the pressure—for instantaneous flow*
★ *Closes against the pressure—eliminates water hammer*



Optional break flange gives double protection against impact damage

NEW SAFETY FLANGE

NEW SAFETY COUPLING

The EDDY Hydrant...improved... streamlined...modernized...retains all the basic advantages that have made these hydrants outstanding for four generations. Yet, it has important new advanced design features which provide the utmost in efficient, dependable, longlife fire protection service.

These new important advantages are provided without sacrificing interchangeability of working parts with EDDY hydrants now in service. Now, more than ever, EDDY offers maximum fire protection, economical maintenance and assurance against future obsolescence in your fire-fighting system.

Before buying or specifying hydrants, be sure you know how these advantages may benefit your community.

EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.

WATERFORD NEW YORK

Purchasing

Barber-Greene's unique Dyna-Mix pugmill. Following the accepted twin-shaft design, the Dyna-Mix allows the entire batch to rest below the center line of the paddle shafts. Replaceable and reversible paddle tips and replaceable liner plates are abrasion-resistant nickle-alloy steel. Of special design, the pugmill is very wide and deep and its "length" is actually its shortest dimension. This permits rapid and easy movement of material vertically and horizontally in the pugmill, as well as back and forth along the paddle shafts.

To serve the four-bin design, both models are equipped with a 3½ deck vibrating screen, fitting either to handle a full range of asphalt mixes at top capacities. The controls of the plants have been designed for maximum operator ease and convenience, and extensive use of hydraulics is made.

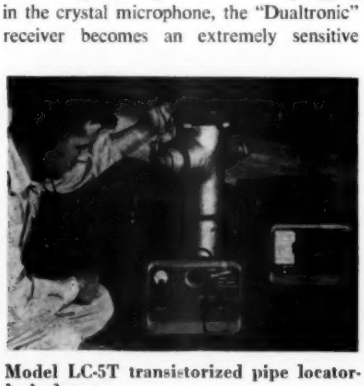
A complete scavenger dust system, a fines handling system, combined overflow chutes and a full range of plant accessories including dryers, dry fines collectors and wet-type dust collectors and cold aggregate feed systems are among the remaining features.

Complete information on the Model 890 and Model 891 asphalt batch plants may be obtained from BARBER-GREENE CO., 400 N. HIGHLAND AVE., AURORA, ILL., or you may use the Post Card on the insert following Page 50. Circle No. 826.

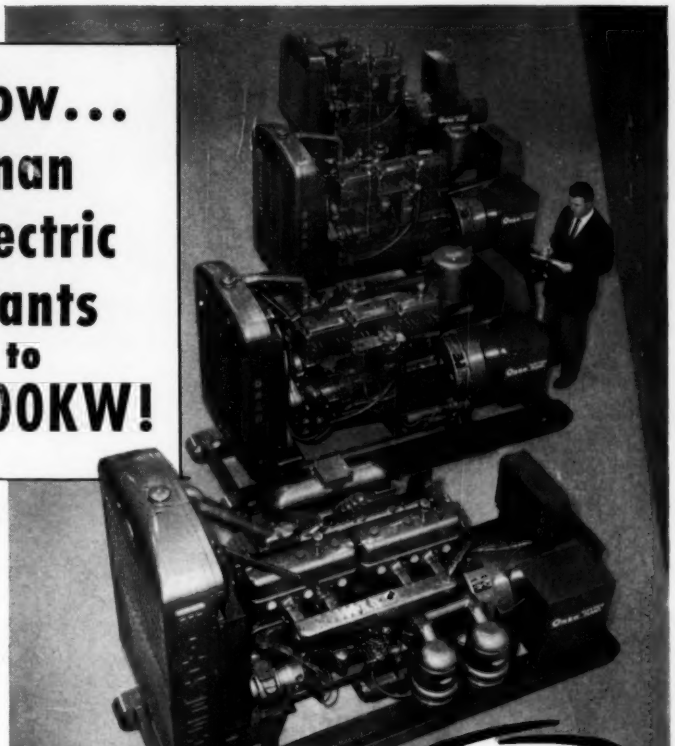
Dualtronic Pipe Locator-Leak Detector

Latest addition to the Goldak line of transistorized, portable detection equipment is the Model LC-5T "Dualtronic" pipe locator-leak detector. Featuring an etched circuit, packaged stages, and an improved high grain crystal microphone, it requires only one type of battery (flashlight cell). "B" batteries, such as 45 and 67½-volt sizes, are not required.

The Model LC-5T exhibits pinpoint accuracy in locating and tracing pipes, cables and conduit, measuring depth, detecting laterals or service lines, and locating valves, risers, valve caps and manhole covers. By flicking a switch and plugging in the crystal microphone, the "Dualtronic" receiver becomes an extremely sensitive



Model LC-5T transistorized pipe locator-leak detector.



New Magneciter Generator gives important performance advantages*

Now you can have Onan engineering and Onan dependability in high-capacity plants, too! In gasoline-powered models, 100, 125, and 150KW sizes have been added to the line. New diesel models include 10, 15, 25, 35, 50, 60, 75, 100, 125, 150, 175, and 200KW capacities. All standard voltages are available.

All models are powered by heavy-duty industrial engines matched to the power requirements of the generator. Custom modifications to meet the needs of particular applications add to the versatility of the new Onan line. Automatic controls for standby installations are available for each model.

All plants 100KW and larger are Magneciter-equipped

This new Onan generator with static exciter and voltage regulator has these advantages for both standby and primary power installations:

- **Simplicity** — Eliminates hundreds of electrical connections, the commutator and its brush rig.
- **Constant voltage** — Voltage dip is less than 20% with motor starting load. Stable generator operating conditions re-establish within two seconds after load is applied.
- **Lighter weight, more compact** — Plants are shorter by a foot or more, lighter in weight.
- **Less maintenance, easier servicing** — The static exciter and regulator are externally mounted and easily accessible.

**Onan alternator with static excitation and static voltage regulation.*

Specification kit available now! Write for it!

Onan builds electric plants from 500 watts to 150KW, gasoline-powered; 3,000 watts to 200KW, Diesel-powered.

D. W. ONAN & SONS INC.

2531 University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

Onan ELECTRIC PLANTS

The people's choice. Modern concrete for North Haven Boulevard, Cuyahoga Falls, Ohio.

Cuyahoga Falls, Ohio, found the answer

It's easy to get approval for concrete streets!

People like concrete. Officials of villages, towns, cities of all sizes have found this true. In Cuyahoga Falls, Ohio, for example. Officials got the facts on concrete, worked out the details for their latest street program with the experienced help of qualified engineers.

Meetings were held to keep the taxpayers informed. To double-check, residents of one street, North Haven Boulevard, were polled. 4 out of 5 families said they wanted their street paved with concrete!

They got their modern concrete street . . . clean, bright, attractive. Smooth-riding. And with the extra safety of concrete's skid-resisting surface and high night visibility.

And taxpayers will save money on all the new concrete streets in Cuyahoga Falls. They'll last an expected 50 years and more. Upkeep costs will run as much as 60% lower than for asphalt.

Municipal officials everywhere are finding the same satisfaction in knowing that informed taxpayers are solidly behind the choice of concrete for their streets. If you want informative literature, help in planning a new street program—or would like to know more about engineering services available to you—just call on PCA.

PORTLAND CEMENT ASSOCIATION

Dept. A1-4, 33 West Grand Ave., Chicago 10, Illinois

A national organization to improve and extend the uses of concrete

MODERN Concrete

leak detector, able to pinpoint leaks or survey an entire water system for unknown leaks.

For additional information, write THE GOLDAK CO., 1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF., or you may use the Post Card on the insert following Page 50. Circle No. 851.

Executive Changes at Pfaudler Permutit

At its meeting of December 2, 1958, the Board of Directors of Pfaudler Permutit Inc. (new name of the recently merged The Pfaudler Co. and The Permutit Co.), elected Mercer Brugler as Board Chairman, to succeed H. W. Foulds (retired).

Mr. Brugler, who continues as Chairman of the Executive Committee, is succeeded as company president by D. A. Gaudion. Other officers of the company include Ranlet Miner, vice chairman of the Board and Treasurer; and E. E. Geisinger, senior vice president.

Product Development at Hersey

HERSEY MANUFACTURING CO., DEDHAM, MASS., manufacturers of municipal and household water meters is embarking on a new products development program, the aim of which is to place the 100-year-old firm in an allied metal-working field utilizing its machine shop, pushbutton bronze foundry and hydraulic testing department, complete with research facilities.

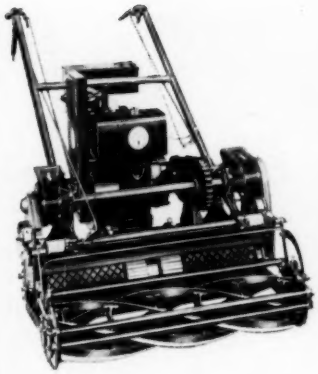
Named to direct the program is Eugene N. Foss II.

New Line of Diesel-Powered Tractors

Diesel-powered models of the famed John Deere "440" crawler and wheel tractors are now in production, as are new matched working equipment.

Tests indicate these diesel-powered units will deliver approximately 10% more power than previous "440" models. The General Motors "Jimmy" 2-cycle engine,

The 831 crawler-loader, shown with the 51 five-position backhoe, is one of several industrial units recently introduced by John Deere with choice of diesel or gasoline engine.



the average life span of a Locke POWER LAWN MOWER and TRIMMER is over

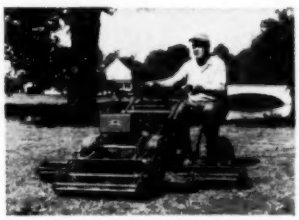
3,000 CUTTING HOURS

A recent nationwide survey showed LOCKE mowers average life-span is 3,000 cutting hours (25 week seasons). One third longer than comparable sizes (3 years at 40 hrs. per week; 12 years at 10 hrs. per week). They also enjoyed a much higher ratio of turn-in-value and compared favorably in performance.

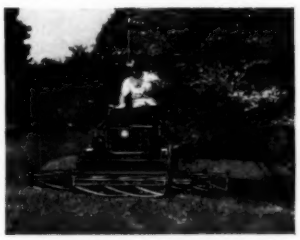
Now is the time to think "grass cutting." Scrutinize every cost factor — original price, repair, maintenance, replacement, man-hours cutting and trimming. How do your costs compare?

Talk to a LOCKE service dealer, now! Let him help you select the right LOCKE mower for a better cost-cutting performance. Ask him for a preview-demonstration. No obligation, of course.

Be prepared to save...
Send for details today!



Ease of handling and flexibility assures a complete job in *one operation.*



Cutting around overhanging shrubbery, cut-up sections and raised borders is easy.

Enormous, spacious lawns cut and trim perfectly, with a minimum of workmen.

Locke POWER LAWN MOWERS
1315 CONNECTICUT AVE., BRIDGEPORT 1, CONN.
A product of Locke Steel Chain Co.

Locke Mower Div.
Locke Steel Chain Co.
1315 Connecticut Ave., Bridgeport 1, Conn.

Gentlemen: We are most certainly interested!
☐ Please have your dealer phone me.
☐ Send your latest literature.

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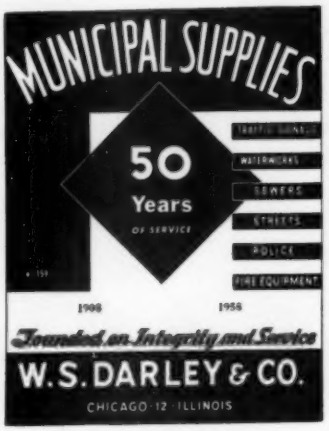
NEW CATALOG!



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For
100-PAGE
CATALOG

W. S. DARLEY & CO.
CHICAGO 12

EBMI
Underground Boring Machine
New! Improved!

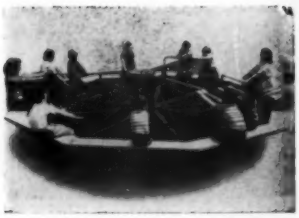
Model 70

- **BORES**—with no surface break
- **BORES**—up to 250 feet in length
- **BORES**—up to six inches diameter
- **BORES**—so drill stem of pipe of conduit stays
- **BORES**—1,000 feet on 1 Gal. of gas
- **REAMS**—up to 12 inches diameter

Write immediately for information.

EARTHWORM BORING MACHINE, INC.
P. O. Box 1100
Santa Monica, California

Designed in Cooperation with Recognized Authorities on Play Guidance and Physical Education



Game-time
UNCONDITIONALLY WARRANTED

PLAYGROUND
SCHOOL • PARK • POOL
EQUIPMENT

Easier to Install — Stronger — Safer

Planning and layout service.
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GT
Game-time, inc.
206 Jonesville Road
Litchfield, Michigan
Wholly owned subsidiary of Simpson Mfg. Co.

Perfectool
cleans
UTILITY SERVICE BOXES
in minutes

Debris-clogged gas and water service boxes can be an expensive nuisance in an emergency. Perfectool eliminates the necessity for digging up the service box. This strongly made hand tool acts as a miniature two-jawed clam shell bucket. Depressing the spring handle opens the heavy bronze spoon-shaped jaws for the pick-up. Relax spring pressure and the jaws close on their load of debris.

The Perfectool comes in two sizes. *Standard* for service boxes 2" to 4" diameter; *Type-M* for boxes 1¼" to 2" diam., up to 6 feet deep. Longer handles $1.00 per added foot.

Write for descriptive folder. Better still, order a Perfectool today on 30-day trial with return privilege. Price $32.50, F.O.B. shipping point.

Perfectool Company
4611 N. Clark St. Chicago 40, Ill.

Purchasing

which powers them, has a 3⅞-inch bore and 4½-inch stroke, with rated horsepower of 33¼ at 1850 rpm. Displacement is 106.1 cubic inches; compression ratio, 17 to 1. Maximum torque at 800 rpm is 108 pound feet.

In addition to the advantages of new diesel power and fuel economy, the new "440" crawlers will offer improved transmissions, increased strength and new working speeds. The "440s" will continue to be offered with gasoline engines, also of 2-cylinder design. For further information, write JOHN DEERE INDUSTRIAL DIVISION, MOLINE, ILL., or use the Post Card on the insert following Page 50. Circle No. 852.

New Traffic Striping Gets Heavy-Traffic Test

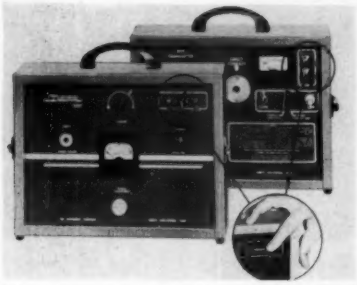
The test site is heavily traveled U. S. Route 1 intersection in Washington, D.C.

The participants are (left to right) E. H. Toman, Cataphote Corp.; Joseph Parlon, Department of Highways and Traffic, D. C. Govt.; Lt. Gen. Eugene Reybold, former chief of engineers, U. S. Army; W. L. Lowry, Cataphote Corp.; F. D. Reali, Office of Chief Engineers, U. S. Army; Isadore Nimeroff, Bureau of Standards.

The occasion is the first demonstration of a new fast-drying thermoplastic reflectorized traffic striping material manufactured by the CATAPHOTE CORP., TOLEDO, OHIO and JACKSON, MISS.

Redesigned Pipe Detector

A newly designed circuit greatly improves the sensitivity and efficiency of the Detectron pipe detector. A signal of much sharper cut-off now more accurately determines the exact number of pipes lying in a given path. This greatly reduces the possibility of cutting unknown pipes, since two closely parallel pipes, can now be detected independently. The new circuit also provides a more stable field signal, reducing



The increased sensitivity of the "505" circuit permits it to locate deep pipes easily, thus preventing the possibility of their being cut by a ditcher.

the possibility of false signals frequently caused by static and minor changes in the mineral content of soil.

These improvements have been incorporated into both the standard Model "505" and the Model "505-C" Combination Pipe-Leak Detector. For full details, write COMPUTER-MEASUREMENTS CORP., DEPT. 52A, 5528 VINELAND AVE., NORTH HOLLYWOOD, CALIF., or you may use the Post Card on the insert following Page 50. Circle No. 831.

Badger Purchases Measure-Rite

Purchase of Measure-Rite, Inc., Alhambra, Calif., by the BADGER METER MFG. CO., MILWAUKEE, WIS., will, in the words of James O. Wright, Badger president, "round out Badger Meter's line of liquid measuring devices, as well as serve to broaden our marketing areas."

Measure-Rite manufactures Main-Line meters, irrigation and special application meters. Badger, a leading manufacturer of residential, commercial, and industrial meters for measuring liquid, headquarters at 4545 W. Brown Deer Rd., Milwaukee.

Economy-Priced Refuse Collector

This self-loading packer is a smaller version of the 24-cubic yard Dempster-Dumpmaster placed on the market last year. Known as the CA-15-18DB, this economy-priced unit has a capacity of 72 cubic yards of loose refuse in its 18 cubic yard body, or a compaction ratio of 4 to 1 under operating conditions.

It was developed for use in areas where containers 3 cubic yards and under are employed, and for hand-loaded collection routes where conventional trash cans are used. A special container, with a low loading height, is carried on the lifting arms for manual collection operations.

The safety clearance arms, which bridge the cab doors, have a gross lifting capacity of 3,000 pounds and are capable of handling one, two and three-cubic yard containers. Packer plate has a compression

Everywhere it's
EVINRUDE POWER
for every job on the waterfront

Tri-County Safety Patrol, Sheriff's Department, Wood County, Wisconsin.

For nearly five decades Evinrude outboard motors have been top choice for powering every type of small craft in municipal service . . . waterfront patrol—rescue squads—emergency fire fighting—reservoir chlorination—weed eradication—inspection and ferry service. Complete range of models. 3 to 50 horsepower. See your local Evinrude dealer—his name is listed under "Outboard Motors" in the yellow pages. Evinrude Motors, 4317 N. 27th St., Milwaukee 16, Wisconsin. *A Division of Outboard Marine Corporation. In Canada: Mfd. by Evinrude Motors, Peterborough.*

WINCO®
PORTABLE ELECTRIC POWER
WITH *Automatic* CONSERV-er IDLING CONTROL
EXTENDS ENGINE LIFE
REDUCES FUEL CONSUMPTION
LOWERS MAINTENANCE COST

WINCO MODEL 205B1452D-1M 2500 watts, direct drive, 115 volts, 60 cycle A. C. Lightweight. Carrying Cradle optional.

After starting, plant automatically idles, until load of 75 watts or more is applied. Automatic CONSERV-er brings engine to full power when tool is turned on, reduces engine to idling speed when tool is turned off—all automatically. Get all the facts on this Winco feature.

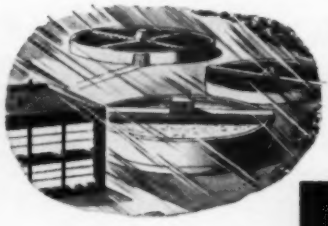
FULL LINE OF PORTABLE AND STAND-BY AC & DC PLANTS. 300 WATTS TO 10 KW
WRITE DEPT. AC-19

WINCHARGER CORPORATION
SIOUX CITY, IOWA
Subsidiary of Zenith Radio Corporation

TWO PIECE
sliding or screw type cast iron valve boxes for covering 4" thru 10" valves for water or gas. Rugged construction for lifetime service. 5¼" shaft. Extensions as required.

Adjustable VALVE BOXES THREE PIECE
valve boxes supplied with separate bases are available in sliding or screw type. Made with 5¼" and 7" shafts with extensions as required. Complete line of service and roadway boxes.

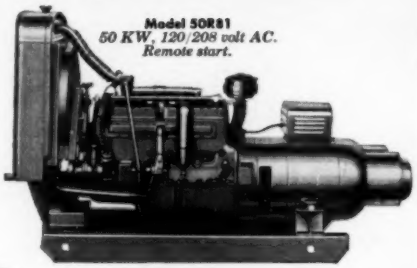
ALABAMA PIPE CO.
We Invite Inquiries to Our Nearest Sales Office
120 S. Michigan Ave. / 350 Fifth Avenue
Chicago, Illinois / New York 1, New York
General Sales Offices
ANNISTON, ALABAMA
APCO



Reliable emergency power for filtration, treatment plants

KOHLER ELECTRIC PLANTS

Kohler plants supply power automatically when emergencies cut off regular supply. Operate sewage treatment and filtration equipment essential to public welfare. Engineered for minimum maintenance; easy to install . . . *Portable power for street repairs.* Lightweight, 4-cycle, quick starting models for on-the-job power tools, night lighting . . . Sizes to 100 KW, gasoline or diesel. Write for folder D-12.



Model 50R81
50 KW, 120/208 volt AC.
Remote start.

KOHLER CO., *Established 1873* Kohler, Wis.

KOHLER OF KOHLER

Enameled Iron and Vitreous China Plumbing Fixtures • Brass Fittings
Electric Plants • Air-cooled Engines • Precision Controls

"TRAFFIC SENTRY"

THE PORTABLE TRAFFIC SIGNAL...

Place Anywhere Needed

then roll, haul or truck to any other spots needing full traffic signal protection.

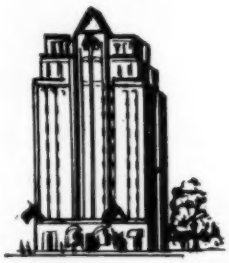
SENTINEL OF SAFETY

Write us at once for installations and complete specifications.

Dealer Inquiries Invited

PORTABLE TRAFFIC SIGNALS. INC

2640 Huron St., Los Angeles 65, Calif.



HOTEL **Duane**

MADISON AVENUE at 37th STREET

NEW YORK

LOCATION...In the heart of quiet Murray Hill section...a few streets from Grand Central and Penn R.R. Stations and Airline Terminals...adjacent to all business districts.

ACCOMMODATIONS...light, spacious rooms and suites...refurnished throughout...delightfully air conditioned...TV and Radio too!

RATES...singles, doubles and suites... attractively low priced.

Write for illustrated brochure

• RESERVATIONS SUGGESTED •

Purchasing

The Dempster-Dumpmaster CA-15-18DB.

force of 58,000 pounds. It is activated by a 4-stage telescopic hydraulic cylinder.

For full information, write DEMPSTER BROTHERS, KNOXVILLE, TENN., or you may use the Post Card on the insert following Page 50. Circle No. 833.

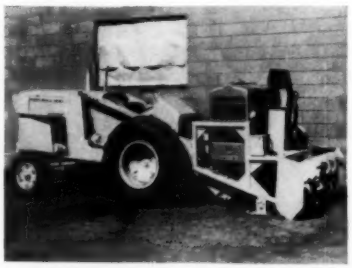
14,000-Pound Per Minute Rotary Snow Plow

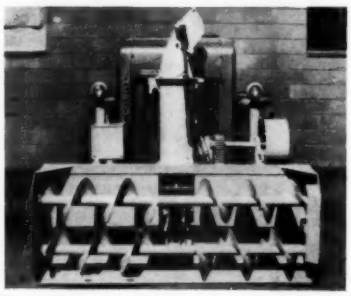
A new, all-welded, low-cost model of the Ram two-auger snow plow is introduced by Ram Equipment Co., Minneapolis, Minn.

Designed primarily for clearing roads and loading snow into trucks, this 14,000-pound per minute unit may be used for cleaning airports and plant yards.

Power plant for the plow is a 4-cylinder Hercules G0-226 gasoline engine, which develops 87.5 hp at 3200 rpm and maximum torque of 182 foot pounds at 1400 rpm.

For additional information, write RAM EQUIPMENT CO., MINNEAPOLIS, MINN., or you may use the Post Card on the insert following Page 50. Circle No. 832.





Ram Equipment Co.'s two-auger rotary snow plow, equipped with a Hercules GO-226 gasoline engine.

About People

C. Floyd, Jr. R. J. Burns

The appointment of Ross J. Burns as general sales manager of the municipal and industrial divisions of **Badger Meter Mfg. Co.**, Milwaukee, Wis., is made known by Joseph E. Johnston, vice president in charge of sales. Succeeding Mr. Burns as national water meter sales manager is Charles Floyd, Jr., previously southeastern district manager at Greenville, S. C., who will now headquarter in Milwaukee. Charles E. Kohl will continue to serve as national industrial meter sales manager with headquarters in Milwaukee.

Garth E. Pehrson, named sales engineer for the Chicago District Office of **Graver Water Conditioning Co.**, division of Union Tank Car Co., New York, N. Y., will handle Graver's complete line of equipment for industrial and municipal water treatment, industrial waste treatment and chemical processing.

R. R. Newquist, president of **Roots-Connersvile Blower Division** of Dresser Industries, Inc., announces the appointment of Glenn H. Crocker as general sales manager. He will have the responsibility for the sales of Roots-Connersville equipment throughout the United States and Canada.

Don E. Moore, who has been named regional sales manager of **Auburn Machine Works, Inc.**, Auburn, Nebr., will be in charge of sales for the eleven western states of the United States. Fred C. Kiechel, vice president and general manager of Auburn, stated that the establishment of the Western Sales Division was made necessary by the expanded activities of the company.

Everett M. Jones has resigned as vice president and general manager of **Simplex Valve & Meter Co.** Succeeding him as general manager is J. M. Hultz.

Word from J. E. Chadwick, vice president for Sales and Service, Koehring Division, **Koehring Company,** Milwaukee, Wis., is that Eugene H. Nelson is the new district representative for the Division's District 4 — Louisiana, Texas, Oklahoma and New Mexico.

Richard P. Akey has been appointed to the new position of assistant general manager of **Hobbs Trailers** of Fort

GUNITE
The Modern Way...

for Repairing, Constructing, Lining:
- Reservoirs • Dams
- Filter Plants • Tanks
- Sewage Disposal Plants
- Stadiums • Bridges
- Sea Walls • Swimming Pools

Write for more information, including 48 page "Gunite" booklet.

PRESSURE Concrete Co.
FLORENCE, ALA.
1555 Helton Street

30 West Washington St.
CHICAGO, ILL.

193 Emmet Street
NEWARK 5, N. J.

HEAVY-DUTY
ELLIS PIPE CUTTER
FOR CUTTING LARGE SIZE PIPE

Drop-Forged Frame and Links

Long-Lasting Cutter Wheels

Makes a Hit With Water Works Men

Cuts Pipe In or Out of Ditch

TWO SIZES
No. 01 for 4" to 8" Pipe
No. 1 for 4" to 12" Pipe
Write for Circular and Price List No. 41AC

ELLIS & FORD MFG. CO.
P. O. Box 308 Birmingham, Mich.

Since 1936 Pioneers in Photo-electric Street Lighting Controls!

WRITE TODAY FOR COMPLETE DATA

SunSwitch
DIVISION
RIPLEY COMPANY, INC., MIDDLETOWN, CONN.

Red Flint

FILTER SANDS

UNDERDRAIN

GRAVELS

PROCESSED TO EXACTING SPECIFICATIONS
SHIPMENTS MADE BULK or BAGS—ANY QUANTITY

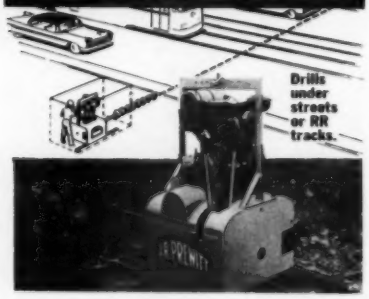
EAU CLAIRE SAND & GRAVEL CO.

– Our 40th Year –

Eau Claire, Wis. — Phone TE 4-4164

Distribution of Filter Sands and underdrain Gravels to all States — and Territories of the U. S., Canada and Mexico

LOW COST — LIGHT WEIGHT
ONE MAN OPERATED
PREWITT
DRY BORE HORIZONTAL
AUGER DRILL



DRILLS 2½ " to 20" DIAMETER — 50' to 100' LONG—Cut labor, overhead and maintenance cost with the amazing new Prewitt Horizontal Auger Drill. Requires ground opening of only 4' x 10' — easily operated by one man. Light weight unit can be lowered in operating position by back hoe. Unit is self contained . . . requires no air compressor, generator, or water. Eight auger sizes are available from 2½" to 20" in diameter. Drills holes from 50' to 100' long . . . holds straight line. Easily reversed for retracting augers.

J.R. PREWITT AND SONS, INC.

DEALER INQUIRIES INVITED
Write, wire or phone for complete information

J. R. PREWITT & SONS

Pleasant Hill, Mo. Dept. AC Phone 40

HOTEL TULLER

. . . featuring convenience, comfort, quality! A cosmopolitan atmosphere in home-like setting. In the center of all downtown activities. Newly decorated. Ultra modern, comfortable guest rooms . . . excellent food at moderate prices in our modern coffee shop and cafeteria.

Radio and Television in room. Air Conditioned rooms in season.

800 ROOMS WITH BATH from $4

GARAGE available at nominal charge. Free overnight parking for registered guests in PARKING LOT.

FAMILY RATES
No Charge for Children 12 and Under —

Harry E. Paulsen, General Manager.
FACING GRAND CIRCUS PARK

DETROIT

About People

Worth, Texas, with which he has been associated 32 years, most recently as works manager. Hobbs is a major manufacturer of truck trailers and bodies, which are marketed internationally.

W. K. Davies

William H. Cochrane, president of **Neptune Meter Co.**, New York, N. Y., has announced the appointment of Walter K. Davies to supervise and coordinate all activities of the corporation relating to prduct sales in foreign countries. Under the title of Foreign Sales Coordinator, Mr. Davies will be responsible for coordinating sales, planning promotional efforts and conducting all functions comparabie to a central "clearing agency" for all transactions made by Neptune and its six subsidiaries outside the United States.

The election of David Skylar to the position of vice president of the **Griswold-Eshleman Company** is announced by Charles Farran, president. Mr. Skylar joined the downtown Cleveland, Ohio advertising agency in 1949, and has acquired, during the past nine years, a varied background and wide experience in all phases of advertising agency operations.

After more than 36 years of service with the **General Electric Co.**, R. J. Swackhamer of Hendersonville, N. C. has retired. Mr. Swackhamer was manager of User Industries Sales for the company's Outdoor Lighting Department at the time of his retirement.

R. G. Allen

At a recent meeting held in New York City the Board of Directors of **Bucyrus - Erie Company**, with headquarters in South Milwaukee, Wis., elected Robert G. Allen as president in charge of all company operations. Mr. Allen succeeds William L. Litle, who will continue as chairman of the Board and senior officer of this manufacturer of excavation equipment.

H. J. Talbot, managing director of Dorr-Oliver Company Limited in England, has been elected a member of the Board of Directors of the parent company, **Dorr-Oliver Incorporated**, Stamford, Conn.

To new representatives for the Detectron line of pipe detectors, pipeleak detectors and box and valve detectors

About People

have been announced by **Computer Measurements Corp.,** North Hollywood, Calif. They are Harry B. Overton, 842 N. State Road, Arlington Heights, Ill., who will cover northern Illinois, northwest Indiana, southwest Michigan and southeast Wisconsin, and Norman E. Van Sickle and Associates, 102½ N. 5th Ave., Virginia, Minn., assigned to cover the State of Minnesota.

Jack B. Hart is the newly appointed Washington representative of the Construction Machinery Division of **Clark Equipment Co.,** Benton Harbor, Mich., according to an announcement by Clarence E. Killebrew, Clark vice president. Mr. Hart will represent the company in negotiating government business and federal contracts.

The appointment of William M. Freeman as manager of the Process Equipment Sales group (headquartered in New York City) of **Chicago Bridge & Iron Co.,** Chicago 4, Ill., has been announced by the company. Another appointment is that of Antonio Nelson de Abreu Gervone as a sales representative by Chicago Bridge Construcoes, Ltda., Brazilian subsidiary of CB&I Co.

F. G. Fabian, Jr.

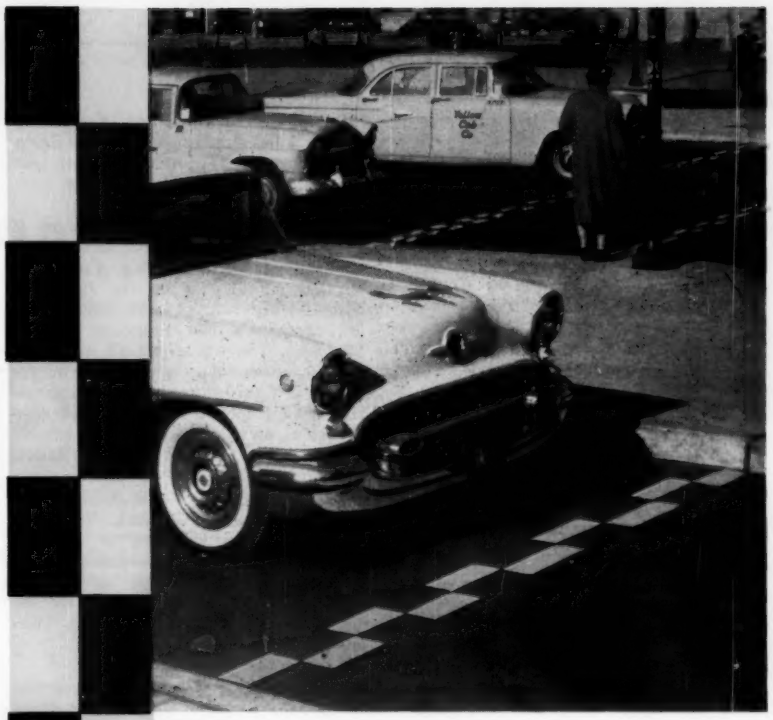
Promotion of F. G. Fabian, Jr., to president of **Dresser Manufacturing Division,** Bradford, Pa., was announced recently by H. P. Boncher, operating vice-president, Dresser Industries, Inc., Dallas, Texas. The promotion was made by the Board of Directors of Dresser Industries at their recent meeting in Dallas.

Pfaff & Kendall, Newark, N. J. manufacturers of street lighting and traffic support equipment, announces the appointment of Forrest E. Pope, Burlingame, Calif., as western sales manager.

Arthur C. Westrom replaces Clarence H. Le Vee (resigned) as director of of engineering, Research and Development of **Hubbard and Company,** Chicago, Ill.

Cleaver-Brooks Company, Milwaukee, Wis., announces the appointment of J. Mel Brown Company, Smoot Bldg., South 11th East St., Salt Lake City 6, Utah, as boiler sales representative in the states of Utah and Nevada, the counties in southwestern Wyoming, counties in central and southern Idaho, and the county of Malheur in Oregon.

Henry F. Munroe of Cranston, R. I. was elected 1959 president of the **New England Sewage & Industrial Wastes**



NEFSLABS® PLASTIC SAFETY TRAFFIC MARKINGS

Outlast paint 5-10 times...and more!

Stay bright, highly visible through heaviest traffic beatings. Eliminate costs of 10 and sometimes 15 repaintings, save city after city thousands of maintenance dollars. Test them in your city—Free!

Now! Reduce maintenance costs with NEFSLABS—the toughest, longest-wearing street marking you'll ever use. For center lines, limit lines, cross walks, they increase traffic safety because color won't wear off. They keep the same visibility for years and years.

Durable, NEFSLABS repel water, gasoline, oils . . . will not get brittle in sub-zero weather, or soft on the hottest summer days—won't crack or chip in any weather. *Thin*, they won't trip pedestrians or be damaged by snow plows, bulldozers or street cleaning equipment. *Universal*, they come in three brilliant colors (white, yellow, red) and black with variations in sizes and shapes . . . available in rectangles, strips, arrows, letters and numerals. *Easy to apply* with our quick-setting adhesive; no waiting period after installation. Traffic can move immediately.

New Sales Territories are Open for Capable Representatives.

J. W. NEFF LABORATORIES, INC.

Traffic Markings Division, Stockertown 1, Pennsylvania

In Canada: 465 St. John St., Suite 510, Montreal 1, Canada

SEND TODAY for a one foot free sample with adhesive. Test now—before your next repaint! Try it in your heaviest traffic location. Compare with present marking methods. You'll never paint again! J. W. Neff Laboratories, Inc., Stockertown, Pa.

NAME_____

TITLE_____

ADDRESS_____

About People

Association at that group's recent annual meeting. Mr. Munroe is a sanitary engineer in the Utilities Sales Department at B-I-F Industries, Inc., Providence, R. I., manufacturers of process instrumentation and equipment for positive control of materials in motion.

Cyrus R. Bird has retired from active association with **The Pitometer Associates, Engineers.** Succeeding him as vice president and western manager in charge of the Chicago office is W. D. Hudson.

Morris Schupack, formerly chief engineer and vice president, The Preload Co., and Charles C. Zollman, partner, Charles C. Zollman and Associates, announce the partnership of **Schupack** and **Zollman Consulting Engineers** for the practice of civil engineering, specializing in precast concrete and prestressed concrete. Offices are at 211 E. 37th St., New York, N. Y. and 3605 Chapel Road, Newtown Square, Pa.

Fred Dolton, recently appointed district representative in the eastern area for the Construction Machinery Division, **Clark Equipment Co.,** Benton Harbor, Mich., will be responsible for sales of the Michigan line of construction and bulk materials handling equipment through distributors in New Jersey and the New York City area.

Carl K. Madison, vice president in charge of the Municipal and Utility Division of **Rockwell Mfg. Co.,** Pittsburgh, Pa., informs us that James H. Sells has been named sales manager for the company's San Francisco district. Mr. Sells, who will direct all water and parking meter sales operations in the northern California area, has announced the appointment of Donald E. Wardynski as sales engineer in the immediate San Francisco area. He will handle water and parking meter sales.

The association of Jack Wood as an associate in the firm of **Harland Bartholomew and Associates,** City Planners, Civil Engineers and Landscape Architects, is announced by the organization's founder and head, Harland Bartholomew.

P. D. Evans, assistant western regional sales manager of **International Harvester's Construction Equipment Division,** has been transferred in the same capacity to the division's eastern region.

DeZurik Corporation, Sartell, Minn., announces the appointment of Hydranumatic Sales Co., 65 Hudson St., Hackensack, N. J., as their representatives in the water and sewage treatment fields. John Horgan, Louis Nemecsek and John Stika of Hydranumatic have long been associated with the water and sewage treatment fields and are capable of rendering any services required.

Stephen Sussna announces the opening of his Planning and Zoning Office at 225 E. Hanover St., Trenton, N. J. The practice will include assistance to attorneys in the preparation of zoning cases. Lawyer Sussna has served as city planning director of Trenton, N. J., and as assistant director of Kentucky's Division of Planning and Zoning.

Edwards and Kelcey, Engineers and Consultants, 3 William St., Newark 2, N. J., makes known that R. H. (Sam) Baldock continues as consultant to the firm. Mr. Baldock, formerly Oregon State Highway Engineer was more recently chief engineer of I.C.A. Highway Mission in Iraq.

CLASSIFIED ADVERTISING

Advertisements in this section will be accepted at the rate of $15 per column inch (minimum 2 inches).

Send copy for ads to the Production Department, THE AMERICAN CITY, 470 Fourth Ave., New York 16, N. Y. Closing date: 15th of preceding month.

SUPERINTENDENT WATER AND SEWER DEPT. WANTED. Experienced in the laying and maintenance of water and sewer mains and in the operation of water filtration and sewer disposal plants. Salary open. Give references, experience and education. Address: City Manager, Hickory, N. C.

POSITION OPEN

City of Miller, South Dakota (Population 2,300) wants Director of Utilities. Would have charge of Sewer, water, Streets, Electric Light & Power, and City Park & Pool. Applicants please send qualifications to Arvin Moen, Mayor.

CITY MANAGER—WANTED by City of Madison Heights, Michigan. Population 26,000. Salary Open. Selection to be made on basis of executive and administration qualifications with special reference to training and experience. Submit complete record and indicate availability to City Clerk, City Hall, 26305 John R Road, Madison Heights, Mich. Closing date February 15, 1959.

WATER & SEWER SUPERINTENDENT WANTED

To understudy older man nearing retirement, engineering background desirable. Experience in construction, operation, employee and public relations necessary. Must be safety minded. Well water system of 7000 meters, two (2) sewage disposal plants and four (4) lift stations. Growing city of 20,000 in Middle South. Give complete resume and salary expected. Box 112, THE AMERICAN CITY, 470 Fourth Avenue, New York 16, N. Y.

PUBLIC WORKS DIRECTOR WANTED

Charleston County, S. C. $725-$905. Longevity pay. Graduate, registered civil Engineer. Five years responsible public works experience. Apply County Manager, Room 8 County Center Annex, Marion Square, Charleston, S. C.

Positions vacant

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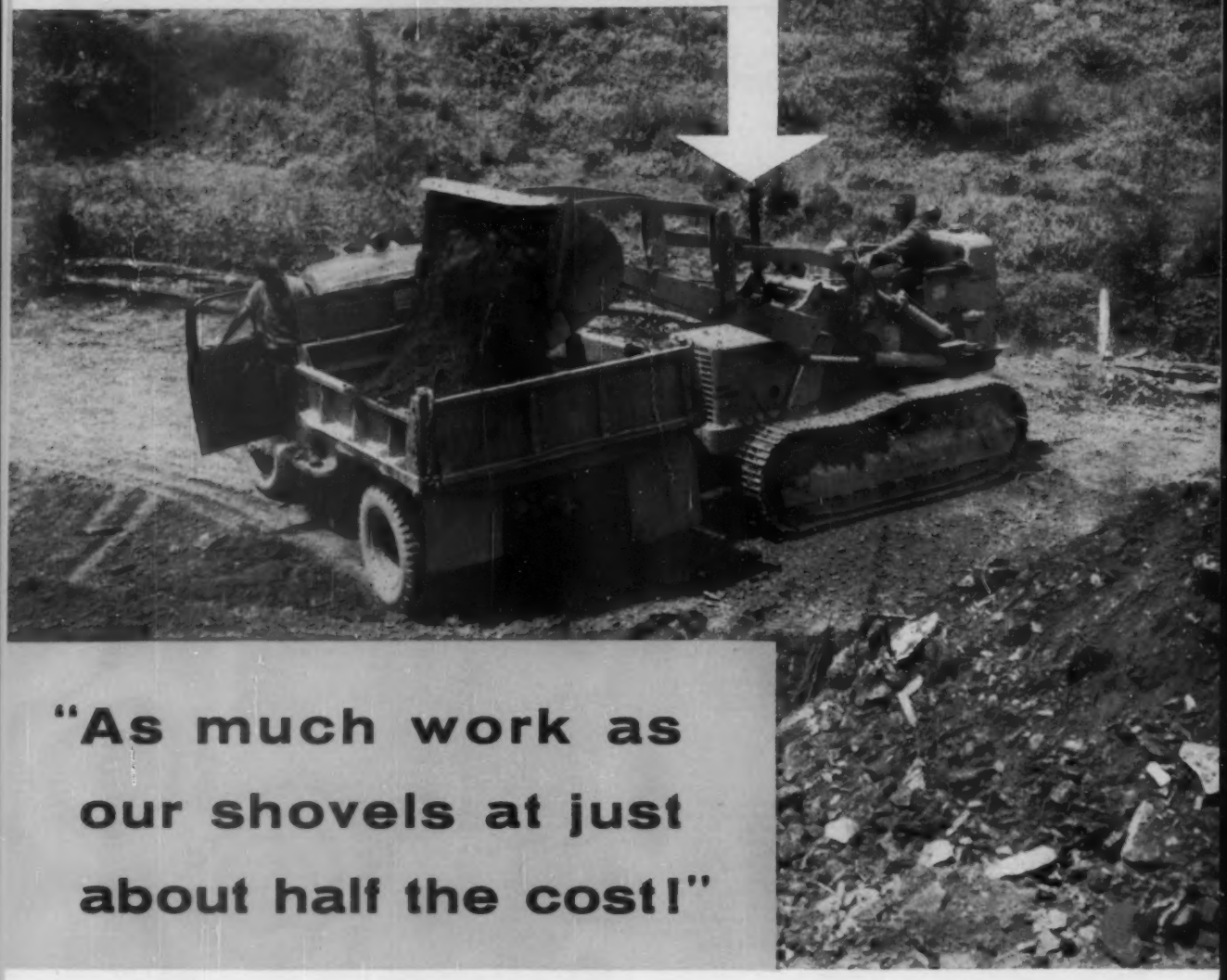

"As much work as our shovels at just about half the cost!"

The Caterpillar No. 955 Traxcavator pictured above is loading dirt on a one-mile road-building job for the Town of Colchester, N. Y. This hard-working machine is part of a 100 per cent Caterpillar team that includes two D6 Tractors and a No. 12 Motor Grader.

"The No. 955 has proven far superior to the shovels we used to use," says Harry M. Shaw, superintendent. "I believe the No. 955 is doing as much work at just about half the cost!"

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The new No. 955 (Series E) features new rugged track-roller frame, new solid sprockets, new heavier idlers, and new tough track rollers for the rough jobs.

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$270 monthly operates landfill

City of 6,100 points to speed of Michigan Tractor Shovel as main reason for 80% cut in disposal time (and expense)

Landfill garbage disposal with a rubber-tire Michigan Tractor Shovel has drastically cut expenses in Buchanan, Michigan.

To operate their 11 acre ravine landfill with the Michigan has cost the city *only $3,255.56* for the past twelve months. *Previous crawler-handling averaged four to five times as much.*

Handles maintenance in spare time

Complete disposal for the city's 1,640 homes and 121 stores and restaurants *is now done in two hours a day* (compared to crawler's eight to ten hours) . . . spare time is put to profitable use by driving the 26 mph Michigan all around town under its own power to do wide variety of loading, unloading, grading, and dozing jobs.

Compaction made after coverage

In normal operation, *garbage,* dumped by a 20-yd packer and four open-type trucks, is dozed at end of each day into marshy bottom-land, then covered with 12 inches of Michigan-excavated bank-run sand and clay. *Refuse,* averaging 125 cu yds, is brought in once a week, with cover made by the 1¼ yd 4-wheel-drive Michigan the next morning. After coverage, the fill areas, which have been limited to 20 ft width, become roadways and turn-arounds for both trucks and Michigan. No pre-fill compaction need be done.

"Could dig trenches"—Supt.

"We've found sand ideal for this fill-before-compaction method," advises Supt. Mike Hankila, "but I think good compaction can be accomplished *after* coverage no matter what the material. We find the ravine-fill method least expensive, too, but *if* we ever *must* dig disposal trenches, Michigan's performance in hard clay—in digging on steep slopes—and in excavating axle-deep mud—assures us it can adequately do this job too."

"Tires good for years" —City Manager

In all its work over the past 12 months, Michigan repairs have cost only $101.40—*including labor.* Only one puncture has been experienced. It resulted from an 8" spike on the dump. Dismount, patch, and re-mount took only two hours. All tires, including the repaired one, still have almost all tread. City Manager John Kennaugh says they should last "for years." Mr. Kennaugh credits long tire life to (1) the method of operation where cover is made prior to compaction, (2) intelligent operation such as elimination of "cowboying," and (3) Michigan's efficient all-Clark power train which virtually eliminates wheel slip on turns and under load. "Now that we know how efficiently a rubber-tire Michigan works at the dump—and how many maintenance jobs it speeds," says Kennaugh, "we advise every city to *try* the Michigan method!"

Typical Michigan odd job: truck-loading large tree sections. Other recent assignments: lift old concrete wall, 10 ft long, 4 ft wide, 1 ft thick, *weight 6,000 lbs.* Backfill and load excess dirt from sewer and water main installations. Grade parking lots and play grounds. Cut down banks along streets to improve visibility. Unload tile and water and sewer pipe from trucks and rail cars. Load salt-trucks for winter-time ice-control. Remove snow.

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